



*The*  
**MODERN  
HOSPITAL**

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No. 3

# Quality and Safety Assured

## The Mulford Antitoxins, Serobacterins, and all Biological Products are Protected by Every Safeguard

The care taken in every step of the preparation, testing and finishing of the Mulford products safeguards their purity and activity.

A special laboratory of hollow tile and concrete, practically a fireproof monolith, is devoted exclusively to filtering, labeling and finishing the tested products. The building is divided into separate departments, each constituting a complete unit.

**Operating Room.**—The animals are bled in a special department, erected and equipped with the same care as the operating room of a modern hospital. In a different group of rooms the serum is separated from the blood and placed immediately in special refrigerating rooms.

**Testing.**—After the serum passes careful and rigid physiologic and bacteriologic tests, confirmed in duplicate by double and independent check tests, it is delivered to the antitoxin filling rooms.

**Air Washing and Humidity Control.**—The fifteen filling and serum rooms are each white-enameled concrete, supplied with washed and filtered air, insuring aseptic conditions. Humidity and temperature are controlled, giving ideal working conditions for the employees.

The labeling and packing rooms have individual refrigerated rooms and all finished and bulk stock of various biological products is kept at a temperature of 36° F. to 45° F. Shipments are made only after rigid inspection and checking against duplicate sets of records.

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### THE UNIT SYSTEM

The Mulford Laboratories are arranged and managed throughout under the unit system. Separate buildings or departments are devoted to the preparation, standardization, testing, packing and shipping of each product. Each unit is in charge of an expert in the particular branch. Special refrigerating rooms form an important part of each individual unit. This makes it possible to carry a large stock of biologicals with a minimum of deterioration, so that at all times the laboratories are prepared to meet the demands created by epidemics.

The Mulford Antitoxin and Bacterin glass syringes, together with special apparatus employed in



The interior finishing of the laboratories is white-enameled concrete



A model biological laboratory for bleeding the hyperimmune animals and the filtering, testing and filling in sterile syringes of biological products. Steel and concrete construction, fire and vermin-proof; air supplied to filling rooms is purified by washing and filtering; special refrigerating rooms for carrying stock of antitoxins and biological products at uniform low temperatures.

experimental work, are manufactured in the glass factory located within the laboratory grounds.

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Manufacturing and Biological Chemists

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# THE MODERN HOSPITAL

*A Monthly Journal Devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and Allied Institutions, and to their Medical, Surgical, and Nursing Services*

Vol. VI

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## ARCHITECTURE AND COSTS OF THE ITHACA CITY HOSPITAL

### **A Modern Hospital Group, Built Into a Beautiful Landscape, Is the Pride of the City—Made Famous by Cornell University—Some of the Details and Costs—The Medical Organization and Notes on Administration**

By ORNAN H. WALTZ, of GIBB & WALTZ, ARCHITECTS, ITHACA, N. Y.; A. T. KERR, M. D., CORNELL UNIVERSITY MEDICAL SCHOOL; WINNIFRED A. HIGGINS, SUPERINTENDENT

#### THE ARCHITECTURE

By ORNAN H. WALTZ

THE Ithaca City Hospital is owned by the Ithaca City Hospital Association, a private membership corporation, and the new buildings and grounds were opened to the public in January, 1914. The hospital buildings are located within one-half mile of the center of the city on a five-acre plot of land, with three driveway entrances, and overlooking Six Mile Creek Gorge, a beautiful wooded ravine about 500 feet wide and 150 feet deep. This location insures for all time ample space for the present and future buildings, permanent light and air on all sides, and the cool ravine breezes for the summer months. The grounds have been laid out to take every advantage of the natural beauties of the location and planted in harmony with the surroundings, and the buildings, porches, court, and entrance so located and arranged as to give privacy for convalescing patients.

The buildings consist of a three-story central administration building, connected by well lighted corridors with the two two-story pavilions. The nurses' home, a separate building, was made by moving and joining together two houses originally on the grounds and then remodeling to fit the needs, at an expense of about \$4,000.

The main entrance to the hospital buildings is on the northeast side of the administration building, with the offices, doctors' offices, receiving rooms, telephone booth, lavatory, and reception room on the first floor. On the second floor are private rooms, bath rooms, diet room, and chart and linen rooms. On the third floor are the oper-

ating rooms and the superintendent's suite. On the fourth floor are three orderlies' rooms. All floors of the administration building are served by an automatic push-button type elevator.

On each floor of the two pavilions are wards with porches, private and semi-private rooms, together with the bath rooms, diet kitchens, utility rooms, and chart rooms, so arranged as to take the best advantage of the light and air, and making compact arrangement for the head nurses' supervision and to save time and steps for the nurses. Diet kitchens of pavilions are served by automatic push-button type dumbwaiters.

The four porches for the private room patients are located between the administration building and the pavilions, overlooking the court and the gorge. The superintendent's suite and one private room have private balconies.

In the basement are located the kitchen department, stores, class rooms, nurses' dining room, x-ray department, women servants' rooms, laundry, servants' dining rooms, bath, and lavatory.

The heating apparatus is in the subbasement, under a connecting corridor, and consists of two low-pressure heating boilers, one high-pressure boiler, and one hot water heater, together with coal bunkers, ash lifts, etc. All pipes are distributed throughout the buildings in large ducts under the basement corridors.

The three staircases are of steel and Alberene stone, and separated from the corridors by metal doors and wire glass windows. All departments are connected with intercommunicating telephones, all private rooms have outside telephone connections, and all rooms and wards have silent

call signals to the chart rooms, with relays from one building to another.

The buildings are decorated throughout with three coats of Century wall paint; the rooms in a soft gray-green color, with light ceilings; the corridors in tans and browns, with light ceilings, and the operating rooms in white.

The buildings are constructed with concrete foundation walls; the outside walls above grade are 8-inch hollow tile, faced with gray wire-cut brick and trimmed with Indiana limestone; the inside walls, at sides of corridors, are 12-inch hollow tile; partitions are of gypsum blocks. The floor construction throughout, including attic floors, is of hollow tile and reinforced concrete, floated on top. The roofs are of Imperial Spanish red tile on sheathing and rafters. Interior walls and partitions are all plastered two coats, with corners rounded, without casings; corridors are plastered 4 feet high with cement. The finish throughout is of oak, varnished. Doors are of flush vertical veneer oak, and for all rooms are 4 feet wide, with wood transoms. Windows are double slide sash, glazed with sheet glass, with tip-in transoms over. Base in all parts is of Keene cement 6 inches high, coved out to the finished floor. Floors in operating rooms, bath rooms, lavatories, and utility rooms are of terrazzo or tile. All other floors are covered with heavy battleship linoleum over the cement.

#### DETAILED COSTS OF BUILDINGS

Administration building and two pavilions, 486,064 cubic feet.

Cost of buildings complete, including everything required in the structure—heating plant, plumbing, electric work, fixtures, and signal system .....\$98,542.93  
Or 20.2 cents per cubic foot.

Cost of appurtenances, including linoleum floors, screens, shades, refrigerators, decorations, and automatic push-button elevator and two dumbwaiters .....\$11,278.58  
Or 2.3 cents per cubic foot.

Cost of appurtenances (separate from above items)—  
Cooking apparatus .....\$ 500.00  
Sterilizing equipment ..... 1,000.00  
Operating room equipment..... 700.00  
Maternity delivery room equipment..... 150.00  
X-ray equipment ..... 2,000.00  
Laundry equipment ..... 2,400.00  
Demonstration and class room equipment.... 156.00  
Office ..... 225.00  
Furnishings for each single room, \$150.00; double rooms, \$250.00; wards furnished partly from old hospital equipment.

#### THE MEDICAL STORY

By A. T. KERR, M. D.

The Ithaca City Hospital had its inception in the late eighties through an association of women who made an arrangement with the hospital au-

thorities in a neighboring town to send there those greatly in need of hospital care. Although these women joined with others and formed in 1889 the Ithaca City Hospital Association, it was not until 1891 that they secured a building for a hospital. In that year the heirs of one of the prominent citizens gave to the association a site and building. The hospital was opened on January 1, 1892, and continued in the same locality until 1914, when it was moved to the new building on the hill. The original frame structure in which the hospital had started with one nurse and three or four beds had been added to several times until the group of buildings accommodated between 30 and 40 patients.

The hospital has never had a restricted attending staff, all physicians in Ithaca being permitted to take their patients there. For many years the nursing was in charge of graduate nurses, but in 1913 a training school was established.

In 1910, in order to raise the money for the building of a new hospital, the trustees of the hospital asked the mayor of the city to appoint a special committee which should include persons not connected with the hospital association. A committee of 152 was appointed, and this committee obtained pledges to the amount of about \$130,000. Subscriptions for large and small amounts were obtained from a great many different persons, so that the hospital is truly a citizens' hospital. The site was selected, and in July, 1911, the building committee was appointed. In June, 1912, the final plans for the building, prepared by Messrs. Gibb & Waltz, were submitted to the trustees and accepted. After a careful survey of the subscriptions, it was estimated that the building committee could safely count on \$120,000. In order to bring the estimate within this figure, it was necessary to abandon temporarily the original plan that called for a separate building for the heating plant and laundry, and to rearrange the basement, with consequent crowding, in order to accommodate the laundry there and to construct a subbasement under a part of the building for the heating plant. These are as satisfactory as could be expected, but the clinical laboratory had to be given up and this work taken care of outside of the building. The ashes must be taken out and the coal received near the main entrance, and this is a source of constant annoyance.

The building was planned to care for about 80 patients, and to meet the local conditions as they were at the time the building was constructed to take care of the estimated growth during the next ten or fifteen years. The growth has far exceeded our expectations. While in the old hospital the daily average rarely exceeded 35, already in the



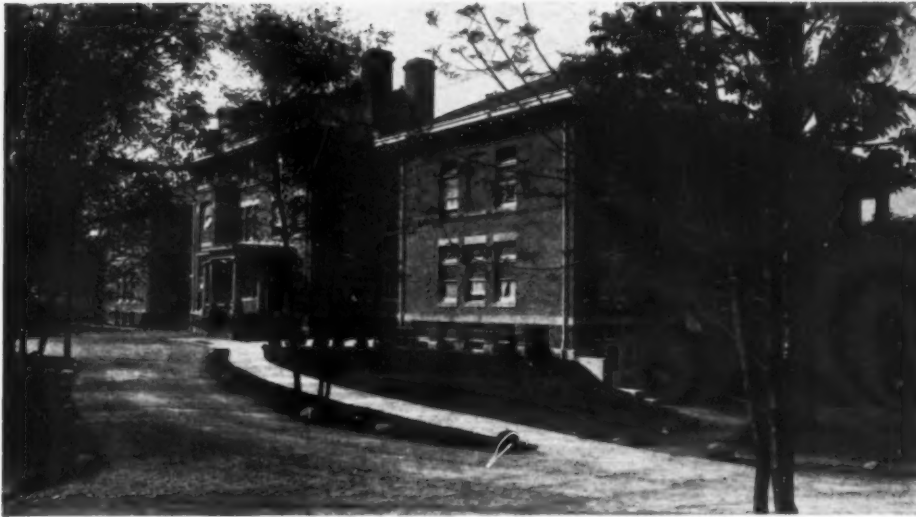


Fig. 1. Ithaca City Hospital. Northwest corner, showing main entrance.

new hospital we have reached full capacity, allowing for classification of patients.

Since the architect's description and plans show so admirably the arrangement of the building, it seems best that I should point out some of the fail-

ures. The waiting room for the family or friends of those who are very ill or undergoing operations is far too small and too public. More than twice as much room should have been allowed for administration on the first floor of the main building. The number of private rooms should have been twice as great. The battleship linoleum that was used throughout the building, except in the bath rooms, has been in the main very satisfactory. It has caused trouble in some of the service rooms and in the basement by coming loose from its attachment. The electric push-button elevator has been very satisfactory, except for the noise, which is a serious drawback, and that is, I understand, un-

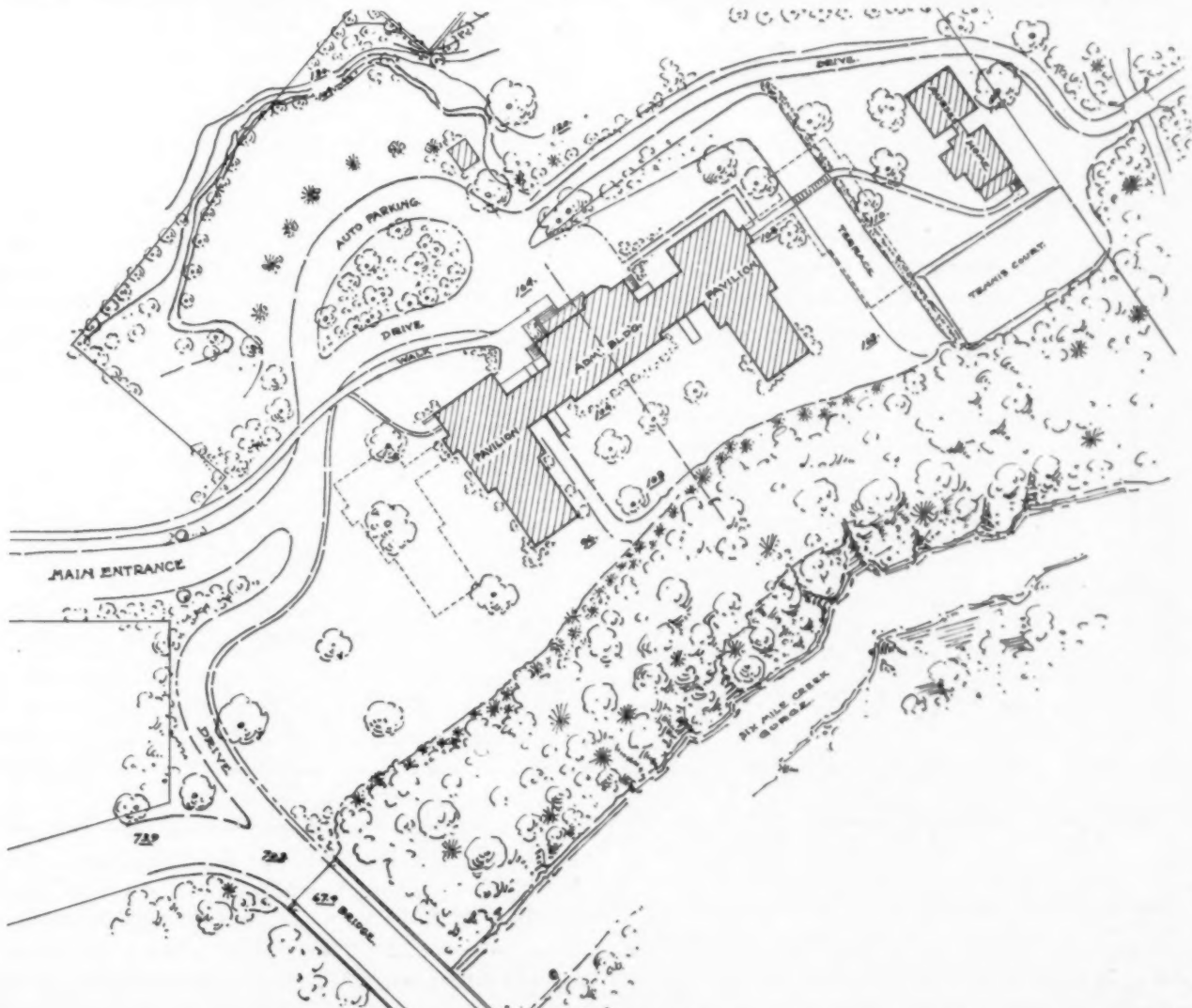


Fig. 2. Ithaca City Hospital. Plot plan.

avoidable with this type of apparatus. The operating room suite has worked out splendidly, but the large amount of work there has impressed the need of more storage and work room.

Two small frame dwelling houses that were on the property that was bought for the hospital site

the lectures are given at the university, are unexcelled.

#### THE ADMINISTRATION

By WINNIFRED A. HIGGINS

The Ithaca City Hospital is one hospital peculiarly for the people and by the people. Built by

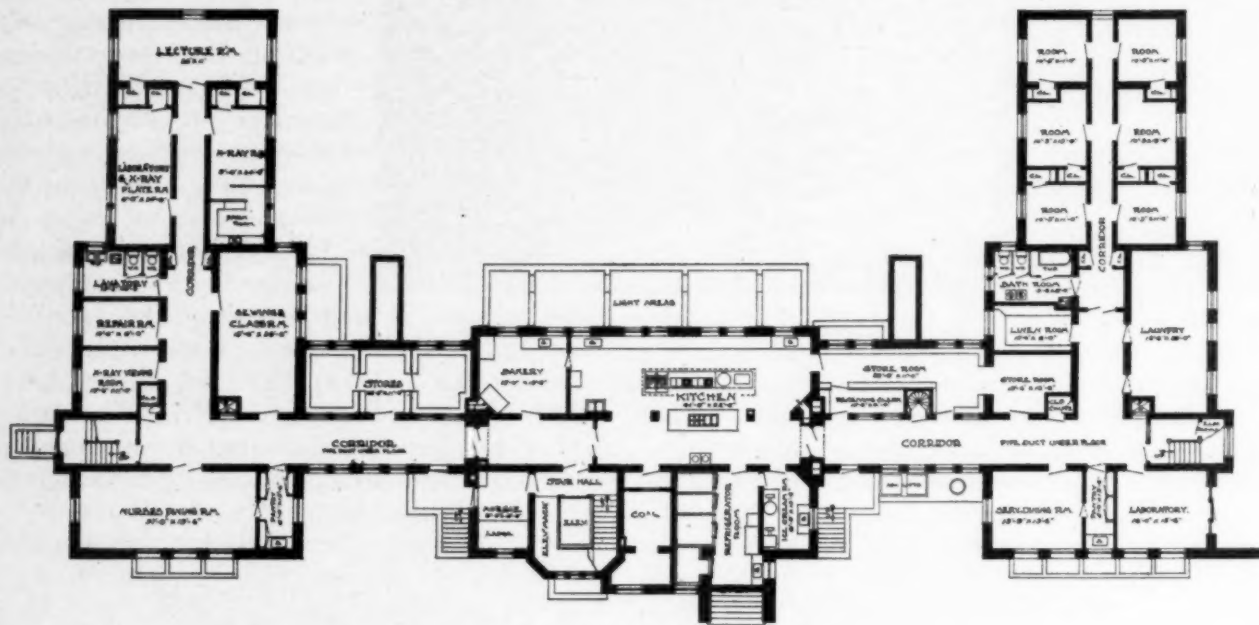


Fig. 3. Ithaca City Hospital. Basement plan.

were connected and used as a nurses' home. The growth of the hospital has already made the accommodations here inadequate, and it is hoped that a new dormitory for nurses may be constructed soon, since the opportunities for a first-class training school, due to the fact that many of

popular subscription obtained from hundreds of people, this is an "open" hospital; that is, any physician or surgeon in good standing is at liberty to bring a patient to any part of the hospital for treatment. This is the only general hospital in the county. As there are, roughly speaking,

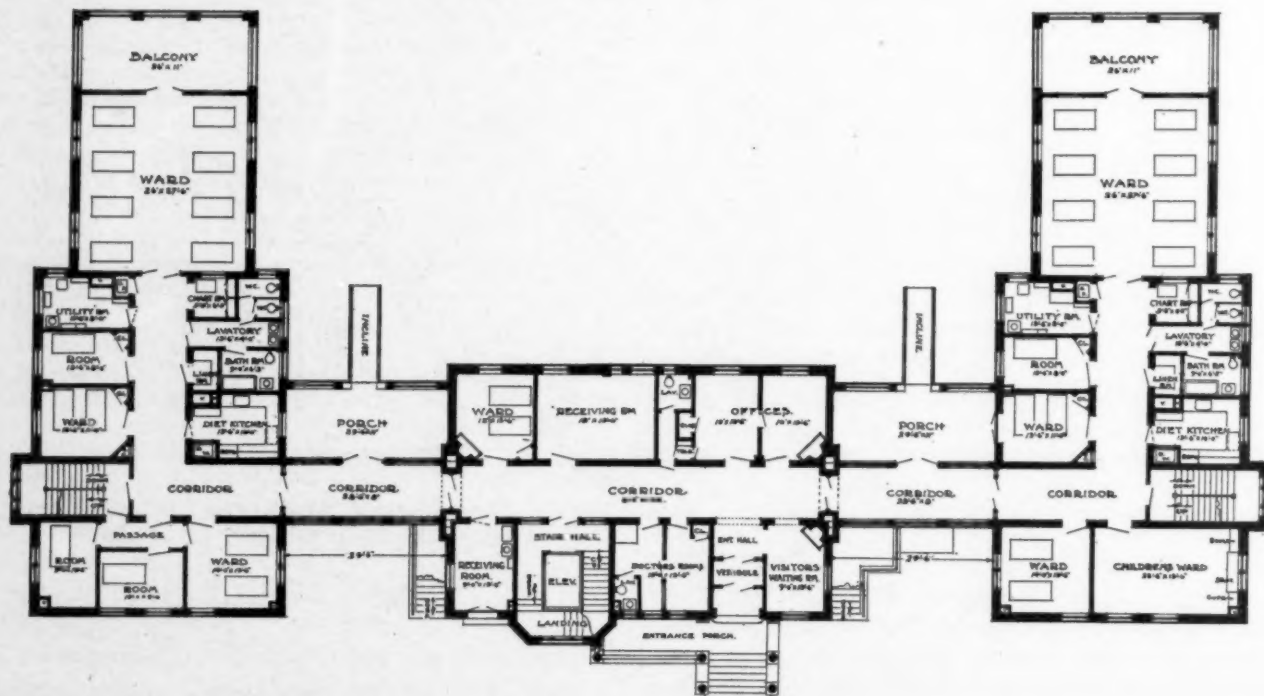
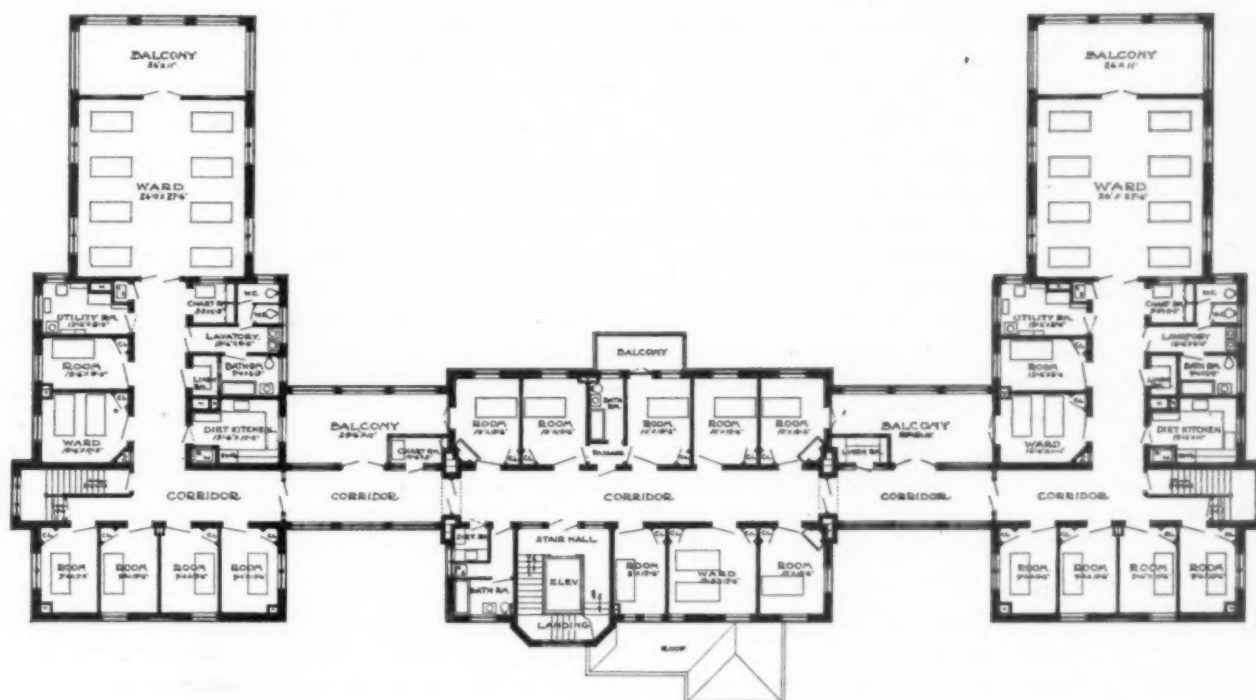


Fig. 4. Ithaca City Hospital. First floor plan.



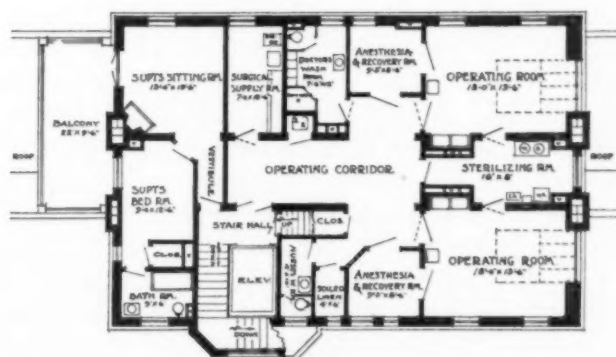
vising nurses in addition to the superintendent of nurses.

The hospital ward rates are \$1.50 a day on the medical and surgical floors and \$2 a day in maternity. The private room prices range from \$2.25 to \$4 a day. Our operating room fees are \$3



divided into medical, unclean surgical, and clean surgical for women. The maternity service is active, the medical experience varied, the children's ward busy, but the surgical work alone quite overbalances the rest for a hospital of its size. Last year we averaged about eighty operations a month.

for minor and \$5 for major operations, and \$5 for delivery fee. The last annual report covered the first complete year in the new hospital. Our daily average of patients was 51, with the average cost per day per patient of \$2.21.



Our x-ray work is quite a feature. The rooms have, however, the objection of being placed in the basement instead of on the main floor. All plates are left on file for future reference.

The hospital has a training school of twenty pupils. There are six graduates employed as super-

The word hospital, whose root is Latin, is of quite modern origin in the sense of nosocomium. Mr. Pointe tells us, in fact, that the Hôtel Dieu of Lyons, founded about the year 542, and which received, like the institutions of the Orient, poor persons, orphans, sick, and pilgrims, is called "xenodochium" in the acts of the fifth council of Orleans, held in 549. The word hospital was originally used in the sense of its root "hospes," "*hospitalium*," and it served to designate all the establishments devoted to hospitality, whatever might be the position or motives of the host, "hospes," or of those who sought this hospitality.—Felix Roubaud.

One ecclesiastical organization stands preeminent in the history of the world's good deeds. The Knights Hospitallers, Knights of St. John of Jerusalem, of Rhodes, and of Malta, as they were called at different periods, deserve special notice. They were men of the noblest families, who voluntarily renounced the world and its pleasures, gave up their wealth, and took an oath, among others, "to be chivalrous to women, to remain celibates, to succor the needy, and to minister to the sick." Their first hospital was built in the ninth century at Sienna.—Richard Dalton.

### THE HOSPITAL LABORATORY—ITS PURPOSES AND METHODS<sup>1</sup>

#### Most Important Factor in the Institution for Determining Results of Treatment—Some Trustees Think More of a Low Budget Than of Low Mortality—Difference Between Research and Clinical Laboratory

By RICHARD M. PEARCE, M. D., PHILADELPHIA

YOU have asked me to speak on the subject of the hospital laboratory, its functions, its scope of usefulness, and its relation to the other activities of the hospital. I do this with pleasure, for I have always had the greatest interest in the development of hospital laboratories, and at the same time a deep and abiding sympathy, often akin to pity, for the men who are working under adverse conditions of equipment in many of such laboratories.

As these remarks imply that I may, later, make some adverse criticism of the indifferent attitude not infrequently shown by hospital trustees to the work of the laboratory, I hasten to assure you that I do not approach my subject as an academic teacher or investigator who, without hospital experience, attempts to bring the ideals of the university research laboratory into the practical every-day affairs of the hospital, but as one who has served his apprenticeship in hospital laboratory service and has always maintained an intimate relation to the laboratory problems of the hospital.

It was my good fortune to begin my work as a pathologist in the laboratory, then the new laboratory and at the time a model to all other hospitals, of the Boston City Hospital. This was the time, nearly twenty years ago, when the hospital laboratory, in this country at least, was emerging from the dark holes under the stairway, the little dark room off the morgue, or the dark, damp corner in the cellar—spaces that no one else wanted and that the hospital superintendent couldn't utilize for storage space—to find its place in the sun.

In those early days in our new laboratory at the Boston City Hospital I became interested in the problems, not only of laboratory management, but of how the laboratory could be utilized for the benefit of the patient, the hospital, and the community—an interest which has continued in connection with other hospitals, private, municipal, and university, with which I have since been associated officially in the cities of Boston, Albany, New York, and Philadelphia. I mention these personal experiences only for the purpose of impressing on you the fact that whatever suggestions or criticisms I may offer tonight are made, not in a

spirit of academic aloofness from the practical affairs of the hospital laboratory, but, on the other hand, with a first-hand practical knowledge of its needs, its possibilities, and its proper functions.

Before taking up the functions of the hospital laboratory in detail, I would like to recall to your mind the historical beginnings of the so-called clinical or hospital laboratory.

The early efforts which led eventually to the establishment of the clinical laboratory were the founding of the laboratories for the medical sciences. With two exceptions—the founding of the first laboratory for physiology by Pürkinje at Breslau in 1824, and that for organic chemistry by Liebig at Giessen in 1825, all scientific medical laboratories—if we exclude those for dissection, have been founded since 1850; thus, Virchow's laboratory of pathology at Berlin in 1856, that of Buchheim for pharmacology at Dorpat at about the same time, that of Hoppe-Seyler for physiological chemistry in 1872 at Strassburg, and that of Pettenkoffer for hygiene at Munich in 1878. I mention these few historical facts to recall to your attention how recent, relatively speaking, is the development of scientific medicine. The early laboratories were, for the most part, concerned with the fundamental medical sciences, but the discoveries made in them had such a direct bearing on the practice of medicine that the laboratory for the hospital inevitably followed.

The first clinical laboratory as an integral part of a hospital, thus recognizing a definite phase of hospital effort, was established by Ziemssen in Munich about 1886; a similar laboratory was established by Curschmann at Leipzig in 1892. The first clinical laboratory with its own building in this country was the William Pepper Laboratory of Clinical Medicine in connection with the University Hospital of this city, opened in 1895. Now, I do not mean to say that laboratory work was not done in hospitals before this time; it was, but in the out-of-the-way corners, the cellar, the attic, or the post-mortem room to which I have earlier referred, and which any of you who remember the hospital of twenty-five years ago can recall. A very few hospitals had something better, but a clinical laboratory in the sense in which we use the term today did not exist. What important events or discoveries brought about this change in

<sup>1</sup>Address before the Presbyterian Hospital Association of Philadelphia, December 14, 1916.



the attitude of the physician and the surgeon and led to the establishment of the hospital laboratory as a definite department of the hospital?

Twenty-five years ago the laboratory activities of the average hospital were practically limited, on the one hand, to those concerned with the examination of the urine, as the test for albumin, the search for casts, and the rough estimation of urea, and, on the other hand, to the microscopic examination of tumors after operation. Indeed, much of the latter was not done in the hospital, but by special arrangement in the laboratories of medical schools. The early development of pathologic histology as a phase of hospital effort we can trace to two factors—the great increase in surgical operations following the introduction and general use of ether anesthesia (inaugurated in 1846, but not in general use until after the Civil War), and the influence of the spread of Virchow's teachings and discoveries.

This rapid development of pathology, a truly remarkable advance, was of the greatest importance to medicine. The examination of dead material, both from the post-mortem room and from the operating table, influenced medicine fundamentally in that it established the anatomical basis—the cellular theory—of disease and thus gave a rational basis to medical diagnosis. It is to pathology, therefore, that we owe the first expansion of the territory covered by the hospital laboratory; but the discoveries responsible for modern hospital laboratory effort—in that they established methods of exact diagnosis in the living—came from the laboratories dealing with living rather than dead material, and, as these discoveries became generally known, hospital laboratories were forced to further expand beyond the urine-examination and section-cutting period of development in order to care for methods and activities which may well be described as those of applied biology. One of the earliest of these discoveries was Lister's practical application of Pasteur's laboratory efforts in the establishment of aseptic surgery. The importance of Lister's work was not immediately recognized—announced in 1867, it was not until 1883 that it was generally accepted.

In the meantime, however, the rapid progress in bacteriology demonstrated the need of utilizing the methods of this science in the hospital laboratory, not only to aid the surgeon in diagnosis, but to control, for the sake of the patient, his technic. The discovery in rapid succession of the bacteria causing glanders and tuberculosis (1882), of cholera (1883), and of diphtheria and tetanus (1884), coupled with the knowledge of the relation of protozoa to dysentery and to malaria, immedi-

ately focused the attention of the world on the problems of exact etiology and therefore of diagnosis, and physicians hastened to introduce bacteriological methods in hospital laboratories. Somewhat later, in the early nineties, Ehrlich's study of the blood cells led to the classification and methods of enumeration on which are based our modern methods of the diagnosis of diseases of the blood.

The necessity of the hospital laboratory was no longer a matter of doubt. It was no longer a question of providing merely for the routine examination of urine. The sciences of bacteriology and hematology placed in the hands of the physician methods of diagnosis which he could not ignore if he were to give the patients in the wards the same consideration he gave to the patients in his private practice. Trustees saw the light and fell into line, and we find that since about 1895 the hospital laboratory begins to take its proper place in the scheme of hospital organization; and, with new discoveries in the fields of immunology and physiological chemistry, its expansion continues and doubtless will continue indefinitely.

The hospital laboratory has three functions:

1. To aid in the diagnosis, and therefore the intelligent treatment of disease.
2. To investigate new methods of diagnosis and treatment, and put them into use with the least possible delay.
3. To advance, by investigation, our knowledge of the cause, course, diagnosis, and treatment of disease.

When a laboratory conscientiously serves these three functions, and only when it does, is it doing its share to help the larger organization—the hospital—to fulfill its function. The function of a hospital is threefold, and, as might be expected, the properly conducted laboratory helps the hospital in each of its three duties. I think we will all agree that the duties of the modern hospital are:

1. To cure or relieve suffering humanity.
2. To train men who are to practice medicine.
3. To advance our knowledge of medicine by research.

In connection with the first of these the laboratory does its share by contributing to exact and immediate diagnosis, and also in these days of the widespread use of biological products it aids also in methods of treatment.

In the second function—that of training physicians—the work of the laboratory is analogous to that of the ward in that the methods used in the laboratory become the property of the staff and interns to the same extent as do methods learned in the wards.

As to the third function—research—both ward and laboratory should have the common aim of advancing our knowledge of disease by investigation.

It is evident, therefore, that the laboratory has the same general purpose as has the hospital at large, and it must further be evident that if the three lines of effort, as I have summarized them, are conscientiously followed, the laboratory becomes, in many instances, the most essential part of the hospital, for without it appropriate treatment—which depends solely on accurate diagnosis—is frequently impossible.

The first function—the work of the laboratory as a diagnostic aid—is naturally its most important function. In the past twenty years most hospital laboratories have practiced, as a matter of routine, the more definitely specific means of diagnosis—the simple chemical and microscopic examination of the urine, stomach contents, and other body fluids, the detection microscopically of the causative agents of disease, and the morphologic methods of blood examination. Other methods, particularly those of immunology, as the Widal reaction and the Wassermann reaction, have been added as their importance has been demonstrated. These may be called the staple diagnostic methods of the hospital laboratory which concern large groups of cases, and, by so characterizing them, I have no desire to belittle their importance. They are essential and must form the great bulk of the work of every hospital laboratory, but as I have watched the work of hospital laboratories, particularly those not connected with medical schools, I have gained the impression that expansion beyond these routine methods is not encouraged by either clinical or laboratory staff. There is little tendency to investigate, either for diagnostic or therapeutic purposes, the individual cases and to use the less common methods, or, perhaps better, the less specific methods of attack. This is particularly true of the methods of physiological chemistry, which are of such great value in the field of chronic and metabolic disease.

How seldom are patients in the hospital with suspected acidosis studied day by day in a chemical sense! The acidosis of diabetes, of cyclical vomiting of children, and of other related conditions is peculiarly a problem in the field of the hospital laboratory, but seldom is the work undertaken even from the point of view of judging of the efficacy of treatment. With some forms of treatment—as, for example, Allen's new treatment for diabetes—the benefit of treatment to the patient and the length of time treatment should be continued can be determined only by daily study of

the total amounts of sugar and ketones in the urine. The same argument applies to cyclical vomiting in children, for in some types of this disease acidosis is not present, and the determination of this fact is essential to rational therapy. Again, in nephritis, gout, and the various affections described as rheumatic, metabolic studies are of the greatest practical importance in determining the character of the treatment and in judging of its benefits.

In hospitals belonging to or affiliated with medical schools much of this border-line work is done in the school laboratories, but in the independent hospital, cut off from such assistance, the patients fail to secure these very important aids to diagnosis and treatment. Because of the lack of such help from school laboratories, the independent hospital should have a laboratory more thoroughly equipped and more all-embracing in its activities than the school hospital. This we find not to be the case. Despite its isolation, which should stimulate it to greater effort in behalf of its patients, we find that the independent hospital, with a few exceptions, has laboratories far inferior, as regards equipment, staff, and ideals, to those of hospitals connected with educational institutions. That this should be the case is a sad commentary on the hard-headed business men who serve on most of our hospital boards. Hospitals, and especially those catering to private patients, cannot afford indifferent equipment. As medicine becomes more and more popularized, laymen are becoming familiar with the great value of laboratory methods in the diagnosis of disease, and their choice of a hospital is often dependent on the reputation of the laboratory of that hospital as an aid in exact diagnosis. In this connection I may add that I believe it is not a bad thing for the hospital laboratory to have a distinctive name. I believe the Ayer laboratory has enhanced wonderfully the prestige of the Pennsylvania Hospital in that the distinctive name has advertised to the public the fact that the Pennsylvania Hospital has a separate building devoted exclusively to the study of disease by laboratory methods and thereby neglects no aid to diagnosis.

Now, a word or two as to the second duty of the hospital laboratory—that is, the immediate testing out and application of new methods which may be of benefit in diagnosis or treatment. There is, as far as my observations may be taken as a criterion, a lamentable tendency to wait for some one else to do it. I do not mean, if a new parasite were announced as the cause—for example, of leukemia—that search for this organism would not at once be made in the blood of such patients suffering from leukemia as happened to be in the



wards, or that a new method of isolating the tubercle bacillus from urine or feces might not be tried at once. These procedures would require only the simple methods for the application of which the routine equipment of the laboratory suffice; but, if the new method announced is a little out of the ordinary, or requires new equipment or material, the procedure is left to the academic teaching and research laboratories until, after it is proved of undoubted value by them, the hospital laboratory is forced in self-defense to adopt it. As an illustration, I may quote the experience of the department of which I have had charge during the past five years. It is essentially a department for research only, and particularly for research in connection with the chronic diseases. We are not expected to teach, to do diagnostic work, or to try out new methods, except as an aid to further research. It has, however, in these past years been my experience to find announced new methods of recognizing disturbances of function in the chronic diseases, and to my amazement to learn that no hospital laboratory in the city of Philadelphia was attempting to test their applicability in appropriate cases. The probable great importance of some of these procedures—as Rowntree's phthalein test for renal function, the estimation of nonprotein nitrogen in the blood by Folin's method, the tetrachlorophthalein test for liver function, the Abderhalden test for pregnancy, the use of the Crehore micrograph for studying vascular disease—led us, in view of our knowledge of the dilatory methods of the hospital laboratories, to test these methods both on animals and man in order to force them on the attention of the hospital laboratories at the earliest possible moment. And I do not exaggerate when I say that some of these procedures were not taken up by hospital laboratories until we had completed our investigation and urged that they be applied as a more or less routine procedure of hospital work.

Now, it may be a very nice arrangement to have a research laboratory work out the availability of clinical tests for the hospital, but it is not the duty of the research laboratory and it is most decidedly the duty of the hospital laboratory. To put it mildly, our attitude may be altruistic, but, if it is, then the attitude of the hospital laboratory must be described as nonprogressive in the development of clinical laboratory methods and as indifferent to the best interests of its patients. The causes of this unprogressive attitude of the average hospital laboratory are, I believe, two-fold—first, an insufficient, underpaid, and overworked staff, and, second, the rigid restrictions imposed by the trustees on the budget for running expenses. Under such circumstances the staff becomes indifferent

to all but the veriest routine of the simple and tried methods of diagnosis, and has no incentive to examine the newer methods and try them out, and, even if occasionally an ambitious worker is fired with a desire to master a new method which requires some unusual expenditure for apparatus, chemicals, or other equipment, he is deterred by the restrictions of the budget. One sometimes wonders if a slight saving in the budget is not more important in the eyes of the trustees than a slight reduction in the hospital mortality figures. I personally believe that the most important single factor in determining the results of treatment is the hospital laboratory. The aid which a properly conducted laboratory can give in determining the cause and stage or course of a disease process, and thereby influence treatment, makes all the difference between the percentage of patients discharged "dead" or "not improved" and the percentage of those discharged "relieved" or "cured."

Some day a hospital statistician will take up this hypothesis, and, by contrasting two hospitals with clinical staffs of equal training and brilliance, but in one an up-to-date laboratory and in the other a mediocre laboratory, will offer a mathematical demonstration of the influence which the laboratory has on the end results of treatment, and will thus give to hospital trustees the argument they need to obtain for the hospital laboratory adequate funds, not only for thorough routine work, but sufficient also to allow the staff to investigate and apply, either experimentally or practically, any new method of diagnosis or treatment, and thus assure to the laboratory one of its higher functions in the scheme of hospital organization.

As to my third proposition—research in the hospital laboratory—I hesitate to lay down any hard and fast rules. In the hospitals of educational institutions, as also in those merely affiliated with such, research is a function of the laboratory as a matter of course; without it the hospital would stagnate and it would fail to attract the best men to serve it—progress would cease, and the result would be felt both by the patient who sought it for relief from suffering and the student using its facilities for his own training. Certainly the independent hospital, which cannot command the assistance and advice of a teaching laboratory staff as can the school hospital laboratory, should not undertake fundamental researches unless its fields of diagnostic effort and of the study of new methods, which I have discussed, are successfully and thoroughly cared for. By fundamental researches I mean the breaking of absolutely new ground and the trying of new paths into the territory of the unknown. It is better to leave such efforts to the academic laboratories or to such re-

search institutions as control hospitals for the prosecution of this work. There is, however, a middle ground of research for the hospital laboratory, and, although it may not yield the brilliant results of original investigation in new fields, it is, in that it concerns the welfare of the individual patient, of the greatest importance to the progress and development of the hospital. I refer to the working out—after a new method has been described, or a new fundamental principle announced, or a new treatment suggested—of the details of its application to the fundamental problem with which it is concerned, with, if possible, its extension to other fields.

I can best illustrate what I mean by a problem in which I am now interested. Folin late in the past summer described a method by which, for the first time, it is possible to estimate quantitatively the elimination of phenols in the urine. This method, the technic of which is very simple, offers for the first time an opportunity to settle the vexed problem of intestinal putrefaction, or autointoxication, as it is commonly called. It is obviously a method that every hospital laboratory should take up at once, for it is in the hospital that these cases—the various types of gastrointestinal disturbance in which increased phenol formation presumably develops, as well as cases with those types of liver disease which are supposed to interfere with the detoxication of the phenols—are to be found in abundance. Folin published, with his description of the method, an account of its application in a group of clinical cases, but the number is so small that definite opinion concerning phenol formation and elimination in various diseases is as yet impossible. Only by massing the results of the study of large groups of cases can an opinion be reached quickly, and in this every hospital laboratory could aid by contributing its share of observations. This type of research is the legitimate field of the hospital laboratory, for the hospital controls the necessary material for study, and by doing work of this type is immediately benefiting its patients.

Folin himself offers, perhaps, an excellent example of what an independent hospital laboratory can do to advance medical research. Some years ago, when connected with the hospital for the insane at Waverly, Mass., he found the methods of determining quantitatively the various constituents of the urine to be inadequate and faulty, as was also our knowledge of the normal quantitative elimination of these substances. He, therefore, started a series of investigations, as part of the routine work of his laboratory, that has given to us many new methods and new facts of the greatest importance in the study of diseases, especially

chronic diseases, characterized by disturbances of metabolism. One may say, if a slangy allusion is allowable, that it was this work that put, not only the McLean Hospital, but the town of Waverly itself, on the map of scientific medicine. One could elaborate on this thought—the indirect value of the publication of researches as an advertisement of the hospital—but this phase of the subject must be very evident to everyone.

Another triumph of a hospital laboratory, and in this case again the laboratory of an independent hospital, that I like to think of, not only as an example of what a hospital can do in the way of research, but also as an example of work of direct humane value, is the investigation in the Mount Sinai Hospital of New York city of the methods of blood transfusion. Although the fundamental principles of the modern method of blood transfusion were established by the blood vessel suture work of Carrel and the use of the metal cannulas of Crile, many details of the practical application had to be worked out by those using the procedure on patients. These details demanded work on the choice of methods and of connecting apparatus, on substances which would prevent coagulation, and on the problem of testing the blood of the donor for agglutinating and hemolyzing qualities. These details, moreover, involved the intimate cooperation of surgeon and clinician on the one hand and of the laboratory on the other. It was on this basis that the problem was attacked at Mount Sinai. As recently reported by Ottenberg and Libman, the details of these problems have been worked out to the satisfaction of the Mount Sinai group, and, what is most impressive, has resulted in twenty-eight instances in the saving of life and in thirteen instances in the prolongation of life. Not only has this laboratory made a contribution of great value to medical research and technic, but in the course of the work a group of men has been trained to carry out the procedure without delay or difficulty whenever necessity arises.

It must be clear to you, from what I have said and from the examples I have given, that the independent hospital laboratory has a distinct field of research, which does not conflict, on the one hand, with the teaching and research laboratories devoted to the fundamental medical sciences, or, on the other hand, with the large well-endowed research hospitals which attack clinical problems on a large scale. Its field is the detailed study of disease in the living by the application of old and new methods, with the object of accumulating a mass of facts that will settle many of the obscure points of organic disease. I like to think of this work with the living, by the methods of physics and chemistry, as analogous to the work of the



clinicians and pathologists who followed Virchow's teachings. By applying morphological principles in the study of the dead and using the numerical method of Louis in the living, they settled the fundamental problems of pathological anatomy, and on the foundation thus laid they based the modern principles of the scientific diagnosis of disease. Today, with the newer methods of studying normal and altered functions, the numerical method may still be applied to the living by the use of the methods of physics and chemistry, and thus supplement the gains already made by pathology, and give us eventually, not only scientific diagnosis, but also adequate therapy. And it is to these methods and to the hospital laboratory that medicine looks for an advance in our knowledge of the chronic, so-called degenerative diseases that shall be commensurate with the advance made during the past thirty years in the acute infectious diseases. The great increase in our knowledge of the acute infectious diseases has led to a more or less definite standardization of the methods of recognizing and treating such, but progress in the chronic diseases, characterized by disturbances of the physiology and chemistry of the body and without definite etiology, has been slow and uncertain. As most of these diseases cannot be reproduced in animals, they cannot be studied in the purely research laboratory. Their study is necessarily the joint work of the clinic and the hospital laboratory, and its duty in this regard the hospital cannot honestly escape if it desires to exert its greatest influence for good in the community.

There is one other question which might be presented at this time, and that is the expense of developing a laboratory along the lines I have suggested. This may, if it is desired, be brought out in discussion. This much, however, may be said: it is easier to raise money on the basis of present achievement than on that of promise for the future. It is easier to raise money today for research than for any other activity in the field of medicine. And I, therefore, confidently believe that the hospital which can point to achievement along the lines I have suggested—laboratory diagnosis, the testing of new methods, and modest, but profitable, research in certain types of disease—can, by pointing out the benefits which have thereby resulted in favor of the patient, and thus, in improving for the benefit of its community, the service of the hospital, obtain all the funds any laboratory may desire. But the hospital laboratory must demonstrate first that it is more than a place for mere routine diagnosis by old and tried methods. It must play its part in the social system. It must decide that it is not sufficient alone

to treat disease and relieve suffering, but that it must do its share in properly educating physicians and in solving the problems of the community which relate to disease. These problems cannot be left alone to those who study disease in academic laboratories at second hand, but do not treat it in the hospital.

There is a gradually awakening public opinion that medicine should take a more prominent part in the affairs of the community. The science of bacteriology and the knowledge which it has popularized concerning the etiology and control of disease and pestilence, formerly considered fore-ordained and without remedy, has brought to the race a new hope concerning many of man's afflictions, and this hope is tinged with an impatient demand that all preventable diseases, whether due to infection or occupation, should be thoroughly investigated. The public looks first, and naturally so, to its state and municipal laboratories, and it looks also to the laboratories and hospitals of its universities and of the great research institutions for help in these matters. Why does not the independent hospital play a prominent part in this phase of public service? I believe the answer lies in the fact that, with very few exceptions, the trustees of independent hospitals consistently and blindly neglect the laboratory and the research side of hospital effort, and have no conception of the real value, to the hospital and the community, of the hospital laboratory as a factor in the elucidation of the problems of disease.

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The Romans had no real military hospitals until the time of the emperors, as Hyginus tells us in his work, "*De munitione castrorum*." They were under the supervision of the commanding officer, and had surgeons, administrative officers, and male nurses. It is probable that these military hospitals were established chiefly in permanent camps and garrisons on the frontiers of the empire. At Baden, near Zürich (Switzerland), were found the remains of such an old Roman military hospital, together with a complete pharmacy, surgical instruments, etc. It dates back to the time of the Emperors Claudius or Nero, and is the first hospital of Roman time which has been rendered accessible to the civilization of today.

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It is not necessary, or probably not desirable, that every case of the ordinary infectious disease should be removed to the hospital. If the patient has proper lodging and accommodation at his home, and is able to procure suitable food, medical attendance, and good nursing, and if there are no susceptible persons to be endangered, or he can be effectually isolated from the rest of the household, except those in attendance on him, his removal to the hospital is not required on grounds of public health, though even in such cases it may be desired by the householder on grounds of convenience.—Franklin Parsons.

## STUDY OF THE PLANS FOR A LARGE MODERN HOSPITAL

**Intended to Meet the Requirements of University Teaching, and at the Same Time to Fulfill the Necessities of Hygiene and Sanitation for Patients, and the Centralization of Administration**

BY SAMUEL LAMBERT, M. D., DEAN OF THE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY

THE present paper on hospital construction is suggested by three principal considerations: first, by the present interest of Columbia University in the rebuilding of the Presbyterian Hospital, which has become by an alliance between the two corporations the University hospital of Columbia's medical school, the College of Physicians and Surgeons; second, by the desire to develop the general plans for hospital construction which were suggested in a pamphlet on the ideal development of hospital and medical school, privately printed last spring; and third, by the wish to formulate a solution for New York of the theoretical conditions of hospital construction which are accepted by the authoritative writers on this subject.

It is thought not to be desirable to neglect in this paper a consideration of the problems involved in a rebuilding of the Presbyterian Hospital, and the plans developed below are those of a large general hospital, to include departments of medicine, of surgery and of the medical specialties, to include a department of pathology, with special application to every clinical department, to include a large out-patient dispensary service, and finally to provide adequate facilities for teaching and for medical research.

Such a complete hospital combination has never up to the present time been built. The development of most university schools which have clinical plants in medical specialties has been on the basis of adding a separate hospital unit for each specialty represented. The most complete of such aggregations of clinics are to be found in Europe, and represent especially the German ideal. Such special clinics are essential for advanced or post-graduate teaching in any specialty and for any teaching in such specialties as obstetrics, orthopedic surgery, and psychiatry. In these specialties such individualized work as the care of new-born infants or the fitting and making of mechanical apparatus forms a large part, and the addition of sufficient space to equip such clinics would add very materially to the size of a general hospital. There is no theoretical reason why such cases should not be cared for in the same group of buildings with other patients. They are omitted in the following plans solely because of the practical reason that they demand so much space, but an attempt has been made to include enough of all other important specialties of medicine to give

sufficient instruction to provide a broad foundation in them to all undergraduates and to afford the heads of departments all reasonable facility for study and research. Another omission will also be noted—no room has been planned for a nurses' home. It is believed that the nursing staff is better cared for in an isolated building. Quarters for the nurses could be added to any block hospital plan by the addition of a whole story devoted to that purpose if such a solution of this important question be thought desirable.

In developing the hospital plan suggested last spring in more minuteness, reference has been made to the pamphlet on this general subject already referred to, and also free use has been made of the report of a special committee of members of the medical faculty in which a detailed designation of hospital space was suggested for the departments of medicine, surgery, and pathology. The hospital here planned is not to be considered as a proposal for the new Presbyterian Hospital—in fact, it will not fit on the site already selected for that new building—but if the general considerations presented below are valid suggestions for the construction of hospitals in New York city, neither the Presbyterian Hospital nor any other similar institution can afford to neglect a study of them or can adopt any plan much at variance with this general ground layout. The street plan of New York limits the possibilities of hospital design very materially if the hygienic rules of hospital construction are to be fulfilled. Of all the hospitals which have been built in New York, none satisfies all these hygienic rules and some of these hospitals break most of them.

It is unfortunate that hospital construction cannot be considered chronologically in the nature of a progressive study, for some of the older hospital buildings are far better examples of healthy hospitals, to use Sir Douglas Galton's phrase, than are other institutions of more recent date. Some hospitals have built two series of buildings on an east and west axis on the New York city blocks of 200 feet north and south width, which has resulted in small dark courts between the buildings. Others have constructed wards for the accommodation of a dozen or more patients, into which the sun never shines. Some have built their wards with ample cubic space, but of such a shape that the number of beds planned for cannot be accom-



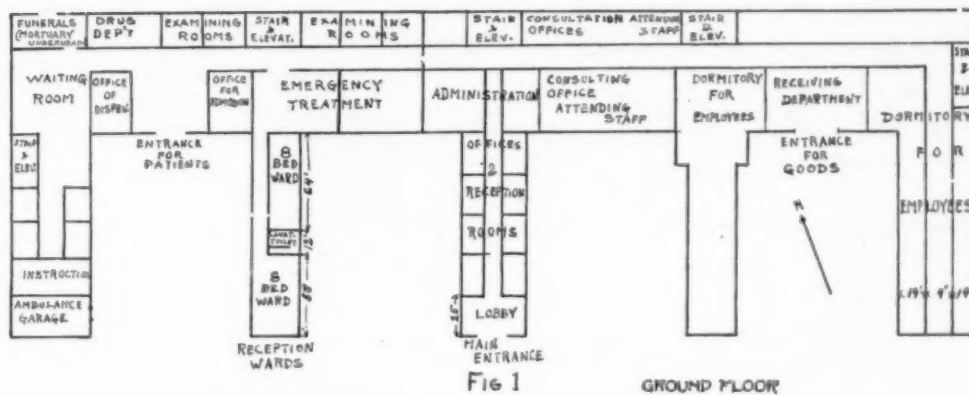


Fig 1  
Dispensary—administration and receiving departments.

modated and at the same time permit the ordinary ward traffic necessary to care for the patients. Many have taken no means to prevent intercommunication between the ward units through stairways, elevators, and corridors. These hospitals have often been planned more to secure centralization in the housekeeping and administrative services than to serve the hygienic requirements of the patients in the wards.

The hygienic rules which are so often broken are seemingly self-evident when expressed in straightforward terms, and it seems superfluous to formulate them. The difficulty seems often to be not that the general proposition is not understood, but that the builders of hospitals have not appreciated when and how even the simplest sanitary laws are being broken. These principles for building healthy hospitals have been presented in the general works on hospital construction by Burdette and Galton in England, by Oswald Kuhn writing as an architect, and by F. Ruppel writing on behalf of sanitary engineer-

ing in Germany. The two most recent presentations are offered from the medical point of view by Grober in Germany in his book on "Das deutsche Krankenhaus" and by Depage and others in French in a work entitled "La construction des hopitaux." The following principles are prescribed by all these writers for the essential element of the hospital, the ward unit: There must be free access of sunlight and air. There must be freedom from dust and smoke, from dirt and noise. There must be protection from the east and north winds. There must be a good cross ventilation by means of the windows. Galton lays much stress on raising the wards above the ground level, which

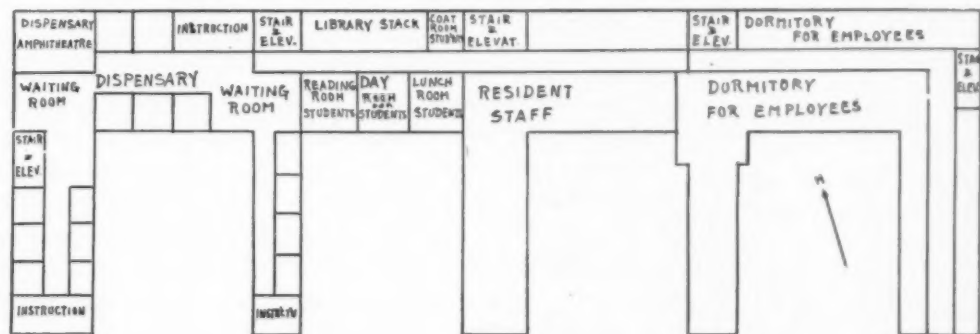


Fig 2  
Dispensary and living quarters for resident staff and employees.

opinion would logically be an argument against the conclusion of all the continental authorities that the single-story pavilion forms the only possible solution of this problem. The ward unit meets these requirements only when rectangular in shape, with its long axis north and south, with windows, preferably one to each bed, on its east and west or long sides, with no obstruction built on its south end, but with all its accessory apartments for service, for communication, and for teaching grouped about the northern extremity. The size of the rectangular ward is determined by the space required for two rows of beds arranged along the east



Fig 3  
Dispensary—kitchens, laundry, and household departments.

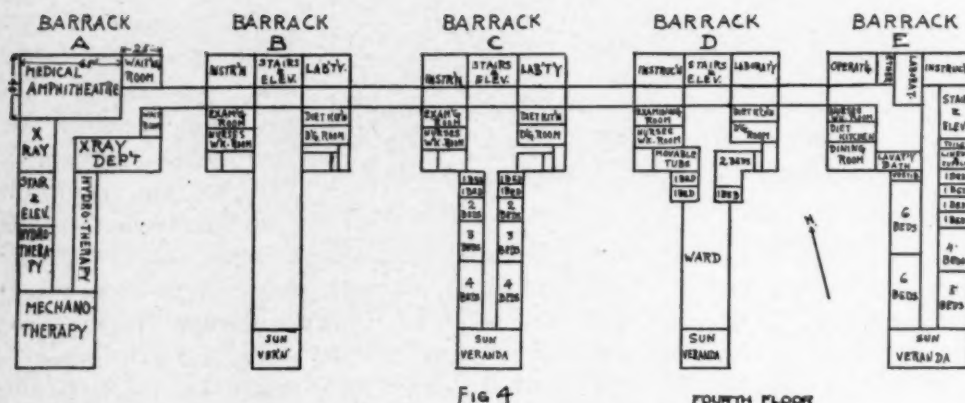


FIG 4  
Special therapeutic departments, medical amphitheater, and wards.

and west walls, with the heads towards these outer walls. Each bed requires a minimum square surface 8 feet by 13½ feet; the 8 feet of ward length or wall space leaves 5 feet between beds and gives room for a chair and a bed table for each patient; the 13½ feet of ward width allows 1½ feet between the head of the bed and the wall and 12 feet between the beds as a central ward space for general ward tables, the necessary aisles for stretchers and service carts. The minimum width of such a ward is therefore 27 feet and its length in feet will be eight times the number of beds on each side; a ward of 20 beds will be 80 feet long, for example. The cubic space required per bed is variously estimated; Grober places it at 30 cubic meters. The most generally accepted height for large wards is 15 feet, and, taking this in computation with the length and breadth dimensions just given, it will be found that 1,680 cubic feet will be allotted to each patient bed. This is nearly twice the allowance suggested by Grober, but even so high an authority as Grober seems to have neglected the fact that the number

of patients represents only a part of the census of a hospital ward. A ward of 24 beds requires six nurses, at least one ward maid or orderly, and in addition there should be added four clinical clerks in a teaching hospital. This would add 50 percent to the ward census without taking account of the more or less frequent visits of

the attending and resident medical staff. The dimensions given for a hospital ward seem none too large, and far from any suspicion of extravagance of space when these conditions are considered.

Another and important point to be observed is the individual isolation of each ward unit from every other so far as the possibility of infection

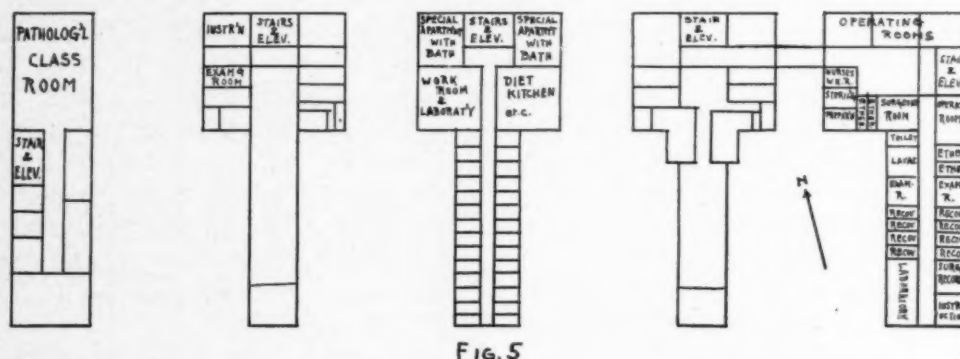


FIG. 5  
Pathological department—surgical operating rooms and wards.

and disturbance in work is concerned. This hygienic decentralization is insisted on by all writers, and the continental authorities are unanimous that it can be secured in hospitals of over 300 beds only by building on the pavilion plan. Grober advises even for a pavilion hospital that the continuity of the few connecting corridors be broken at stated intervals. An antagonism exists

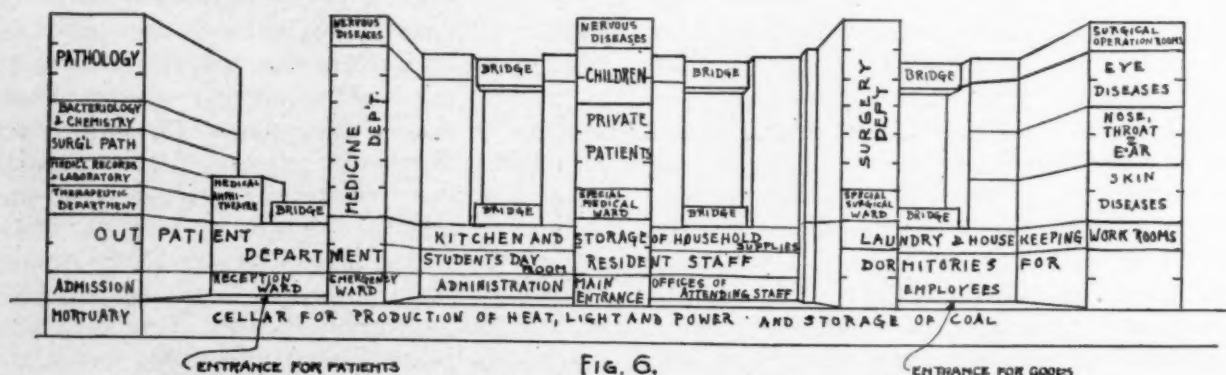
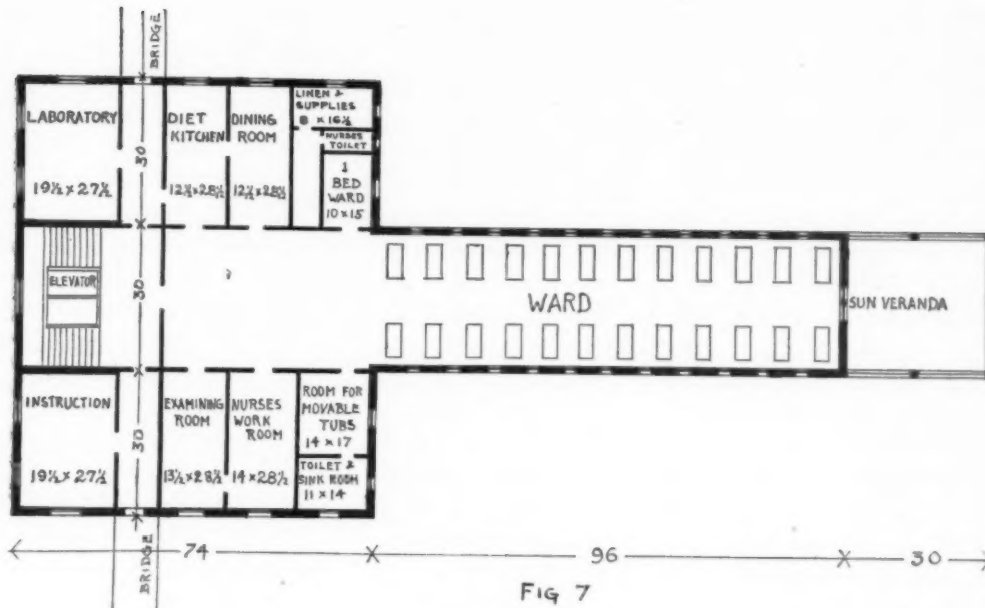


FIG. 6.  
ELEVATION





Ward unit of 24 beds and 1 isolation bed—pavilion of 30-foot width type.

between the sanitary isolation required by the medical service and the service centralization demanded by the housekeeping and administration departments. In the plans developed in this paper it is believed that the necessary hygienic decentralization is secured without sacrificing the service centralization. This is done by planning for a ten-story fire-proof building to be constructed on the modern American system of steel girder support, which has made possible the present-day skyscraper. The pavilions are separated from those on the same level either entirely or are connected only by a single broken corridor along the north side of the site. The pavilions, which are superposed in the same "barrack," are connected by a staircase and elevator shaft also on the north side of the block, which is "broken" by a vestibule on each story. In maintaining his thesis in favor of the multiple one-story pavilion hospital as the only possible solution for building an institution to care for more than 300 patients, Grober makes the definite claim that vertical communication is more expensive and more difficult than is a system of service on one horizontal level. He also seems to favor man power as against mechanical appliances, although he admits that their relative cost

has never been determined. Whatever may be the fact in Germany, neither of these dictums can be accepted as true today for American conditions and, therefore, as arguments for the pavilion hospital. So far as New York city is concerned, the controlling factor which is all powerful will be the cost of land, which alone will compel the adoption of tall, many-storied structures for metropolitan hospitals.

The plans of the hospital here suggested occupy a site 200 by 600 feet; this plot of ground is selected because it represents an average city block in New York. The street plan of New York is made up of streets 200 feet apart, running northwest and southeast, intersected at right angles by avenues at varying intervals, running northeast and southwest. The distances between the avenues vary between 960 feet and 400 feet or less. For such a hospital as is here contemplated no smaller plot of ground should be considered than an entire city block, which would insure air and light on all four sides. Such a site in New York, unless it has a public park on one side or is near one of the river fronts, is limited to a free surrounding space of 60 to 100 feet, which are the regular widths of the city streets. It is desirable, therefore, to build in a neighbor-

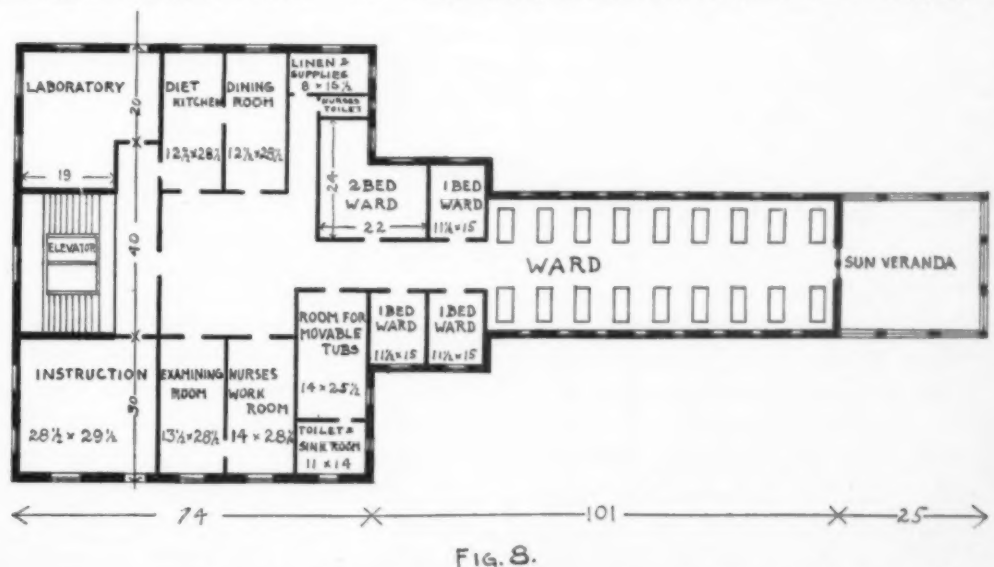


Fig. 8.

Ward unit of 18 beds and 5 isolation beds—pavilion of 30-foot width type.

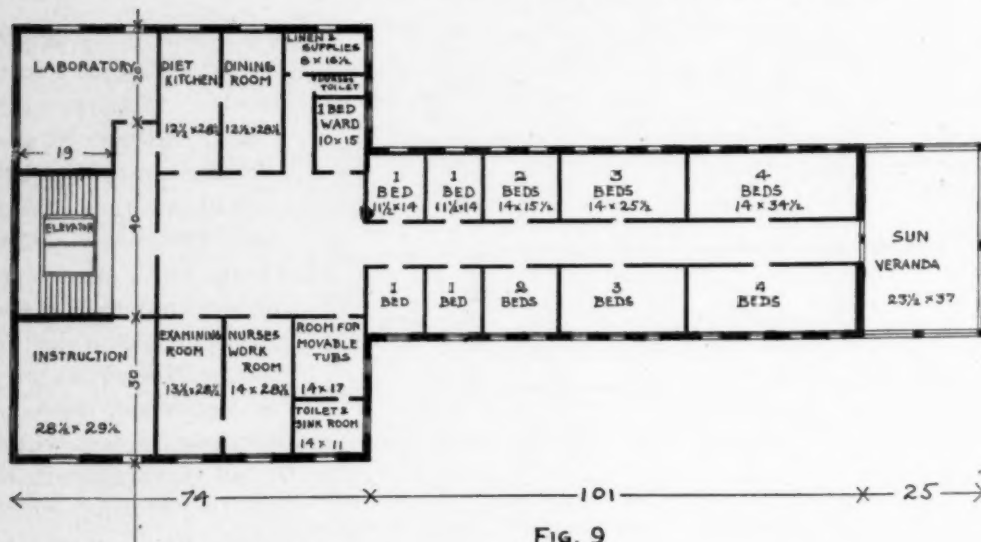


FIG. 9

Ward unit of 23 beds in small wards for children's services or similar services—pavilion of 40-foot width and corridor type.

hood where the surrounding buildings will not be excessively high. Of course such a condition cannot be guaranteed for all time, but the future can be guarded against to some extent by placing the wards in the upper stories. In the plan adopted, all the departments for administration, for housekeeping service, for dormitory uses are in the three lower stories of a ten-story building, and the wards occupy the seven upper stories. The wards are superposed and arranged in pavilions, and each ward forms a complete unit hygienically isolated as already described. Such a site, with a long axis in a general east and west direction and with a north and south width limited to 200 feet, is a necessity in New York. The limitations and difficulties arising from such a site have been emphasized by Doctor Goldwater in a series of thoughtful studies on this subject. Such a site fortunately allows of a long narrow building extending toward the south (actually southwest) to contain the ward units, and of a north main building to contain the accessory ward rooms, the connecting corridors, and the elevator and staircase shafts for intercommunication and service. The ward unit wings may be multiplied at fixed intervals from east and west, and the size of the hospital will be limited only by the length of the site and by the height of the

unit, is a question of detail planning of far less importance than that of the ward units and one which can be solved without serious difficulty or embarrassment. Such a plan meets all the requirements of a large, healthy hospital, and has been referred to in a previous paper as New York's contribution to the solution of the problem of hospital construction. In my opinion the hospitals of New York are to be deemed successes or not from the viewpoint of sanitary science in proportion as they approach this general ground plan in their construction.

In the plans of the several floors the amount of space devoted to each department is indicated with approximate accuracy, but no attempt has been made to develop each department in minute detail, except so far as the ward unit is concerned. The arrangements for each floor are as follows: The cellar contains the steam and electric plants for furnishing heat, light, and power, and for the

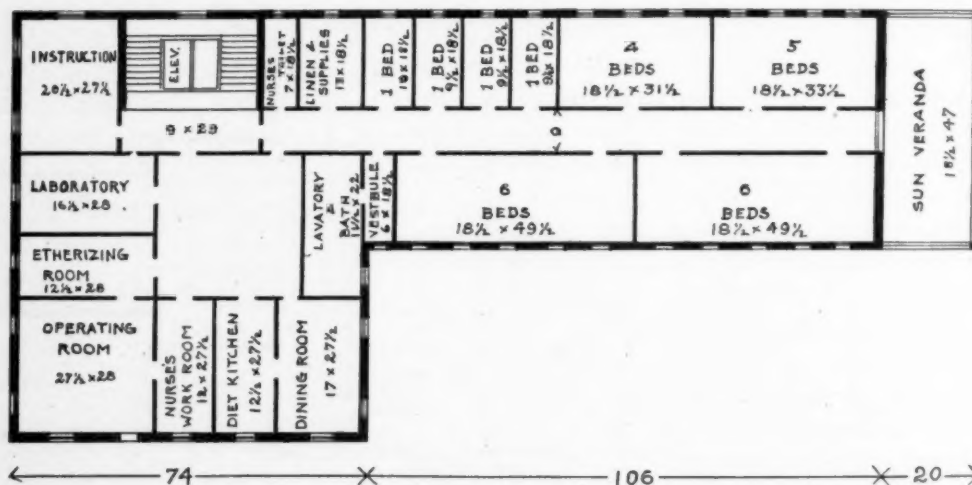


FIG. 10

Ward unit of 25 beds in small wards, with operating room plant for service devoted to diseases of the nose, throat, and ear, and similar services—Pavilion of 50-foot width and corridor type.

building. Such a ward unit fulfills the theoretical requirements of a hygienic decentralization and secures as complete a service centralization as is possible in a building of its size. The adaptation of kitchen and laundry, of storage facilities and of dormitories, of the administration office, and of the out-patient dispensary to this floor plan, which is fixed by the unchangeable demands of the ward

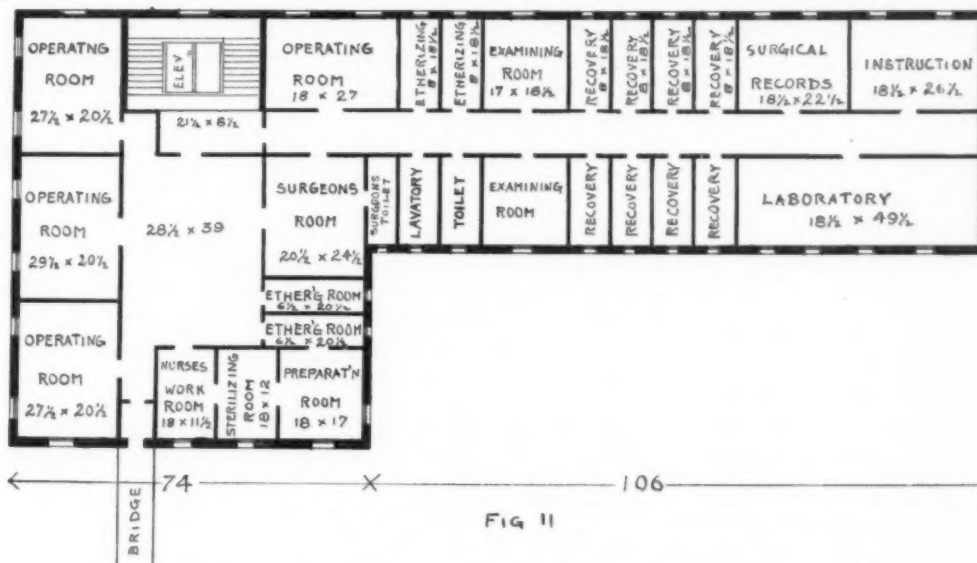


storage of coal. The cellar plan may be excavated on larger lines than those of the stories above, and light may be secured by ceiling openings in the several courts of the building. The first floor (Fig. 1) is given up to the admission department, with an emergency and reception ward in close connection with the first floor of the dispensary. The ambulance garage and offices for administration and the consulting office for the attending staff are also on this floor. The second floor (Fig. 2) has a part of the dispensary, day rooms for medical students, and dormitory space and living rooms for the resident staff and employees. The third floor (Fig. 3) contains the upper part of the dispensary and the household departments, including the laundry, kitchen, and dining rooms. The fourth floor (Fig. 4) is the lowest story devoted to permanent hospital residence. It and the stories

one similar barrack building (barrack A) for the scientific specialties of pathology, with special floors devoted to surgical and to medical laboratories, including bacteriology and chemistry. The surgical operating rooms are on the top story (the tenth), of one barrack, and are shown in Fig. 5 (in barrack E). The pavilions in barracks B and D show the same detail as in Fig. 4, but the pavilion in barrack C is drawn to represent a ward unit devoted to the care of private patients.

In Fig. 6 an elevation shows the distribution of the departments viewing the hospital as a whole. The following points are worthy of emphasis: The medical department is grouped in one barrack building of seven superposed ward unit pavilions. The lower six can easily be administered as three service units of 50 beds each in accordance with the article on the organization of an American medical clinic

by Professor Janeway printed in the June *Quarterly*. In addition, there is an amphitheater with medical laboratory in the neighboring barrack on one side and a series of rooms for the special study of individual cases in the next barrack on the other side. The surgical department is grouped in one similar pavilion barrack with seven stories. One ward unit can be devoted to special surgery and the remain-



General surgical operating rooms and accessory apartments—pavilion of 50-foot width type.

above are made up of one barrack devoted to pathology and of four separated barrack buildings containing superposed ward unit pavilions, which are joined by bridges whenever necessary. In addition to certain wards, the fourth floor contains in barrack A a medical amphitheater and departments devoted to hydrotherapy, mechanotherapy, and radiographic work, which are of convenient access both from the dispensary and from the wards. In Fig. 4 the pavilions in barracks B and D are outlined as different types of ward units 30 feet in width. The pavilion in barrack C is depicted as a small corridor hospital of the medical type (e. g., diseases of children), and that in barrack E is shown as a corridor hospital for an operative surgical division (e. g., diseases of the eye). The fifth to the tenth floors (Fig. 5) inclusive are made up of four barracks, in which the superposed pavilions are devoted to wards, and

ing six should be divided into three service units as planned for the medical division. The operating rooms and accessories are grouped on the top story of a neighboring barrack and can be reached by a connecting bridge; the laboratories for surgical pathology are located in the pathological institute. The department for nervous diseases is made up of two ward unit pavilions in adjacent barracks joined by a bridge. This will permit of one large ward in one unit and of a series of single rooms in the other unit. Each of the specialties of eye, skin, nose, throat, and ear diseases and of diseases of children has assigned to it two superposed ward unit pavilions. There are three pavilions devoted to private patients which will accommodate about 66 patients. There is a single entrance for all patients, both in-patient and out-patient, whether they arrive on foot or by ambulance or other conveyance; a separate en-

trance for the reception of goods, and a main central entrance for private patients and the general public. The transportation of one patient from one pavilion barrack to another is facilitated by a continuous corridor along the whole series on the fourth floor and by connecting bridges and corridors on the topmost story, so that a patient may ascend when necessary in his own barrack and then proceed along the connecting corridor to the surgical operating room; or by descending similarly to the fourth floor a patient may reach the therapeutic plant for radiography or other similar study or treatment. In connection with every ward unit there is a sun veranda, which is situated at the south end of the ward, and each veranda is about 1,000 square feet in area. These balconies are an essential to all convalescent treatment and also for the care of some cases of acute disease. They are designed so that they cannot obstruct the access of light and air to the wards. The hospital will possess five flat roofs, which will furnish five very valuable adjuncts for the treatment of patients.

The remaining series of plans represents in detail and on a larger scale the several types of ward unit which are demanded by the varying widths of the pavilions. Fig. 7 shows the plan for a ward unit of the 30-foot width pavilion type, in which there is a main ward of 22 beds, with one isolating room and the necessary ward accessory rooms for linen storage, for lavatory, for diet kitchen and patients' dining room; also a nurses' work room and an examining room. This plan shows a connecting corridor running east and west, to the north of which there is a laboratory and a room for instruction and the shaft containing the stairs and elevators. In Fig. 8 a ward unit is shown of the 30-foot width type, in which there is a main ward of 18 beds and 5 beds for separate treatment, and in which there is no communication with the ward units on the same level. In Fig. 9 a ward unit of the 40-foot width type is shown. The accessory rooms are the same as before, but the 22 beds are arranged in the form of a small corridor hospital. This corridor plan permits the grouping in smaller wards of cases of various types, an arrangement which is desirable for the patients of a service devoted to medical specialties. Small wards can be arranged economically only on the corridor plan, and must lose the advantages of through cross ventilation and of an east and west daily exposure to the sunlight. In Fig. 10 a ward unit of the 50-foot width type is planned for a medical specialty, which is of an operative nature, such as diseases of the eye or those of the nose, throat, and ear. The arrangement of the wards in these 40- and 50-foot wide barracks is on the

corridor system, which supplies small wards of 1 to 6 beds each. The accessory ward rooms are the same as before, with the addition of a small operating room plant, except that their arrangement on the plan is different.

The essential features of all these ward units are the isolation of the apartments devoted to the care of the sick from all direct communication with the stairs and with the elevator shafts and connecting corridors, and the securing at the same time of a close connection with the housekeeping departments. These requisites of a healthy hospital are attained for three distinct types of ward unit—distinct in detail, but really identical in their general conception. This consists of a long and comparatively narrow pavilion, with a north and south axis, having the accessory rooms and the means of communication grouped about the north ends of the wards. Much work would remain to be done in developing such a hospital plan before actual building could begin. Such details are beyond the scope of this paper, however, which has aimed only to formulate the general principles of hospital construction as applied to conditions in New York city.

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It is sometimes complained that isolation hospitals have not fulfilled the purpose intended by their early advocates—that by their means infectious diseases would be "stamped out." It is not clear, however, that such a claim was ever made by any responsible sanitarian, and the statement does not appear to occur in any report made by such person. But it may be remarked that the infectious diseases for which hospital accommodation was at first most often provided—viz., cholera, smallpox, and typhus—have now become extinct, at least as endemic diseases, although no doubt other factors besides hospital isolation have had much to do with their decline.—Franklin Parsons.

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In the hospital tents of the Crimea, although the sick were almost without shelter, without blankets, without proper food or medicines, the mortality was not above one-half what it was at Scutari, but these tents had only a few patients in each. Nor was it even as high as this in the small Balaclava General Hospital, which had part of its sick placed in detached wooden huts, while in the well-ventilated detached huts of the Castle Hospital, on the heights above Balaclava, exposed to the sea breeze, at a subsequent period, the mortality among the wounded did not reach 3 percent.—Florence Nightingale.

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Wherever cubic space is deficient, ventilation is bad. Cubic space and ventilation will therefore go hand in hand. The law holds good with regard to hospitals, barracks, and all inhabited places. In airy positions in the country less cubic space is essential than in closely-built towns. In detached huts or pavilions, especially if they be but one story high, less space is necessary than where numbers are massed together in large buildings or in more stories than one.—Florence Nightingale.



## TREATMENT OF SYPHILIS IN A GENERAL HOSPITAL

**Organization Depends on Team Work in the Several Departments, and on Definite and Explicit Written Rules of Routine Conduct—Some of the Details of Operation**

BY JOHN H. STOKES, A. B., M. D., CHICAGO, INSTRUCTOR IN DERMATOLOGY IN THE UNIVERSITY OF ILLINOIS, FORMERLY INSTRUCTOR IN DERMATOLOGY AND SYPHILOLOGY IN THE UNIVERSITY OF MICHIGAN

THE organization of a service devoted exclusively to the management of dermatological conditions, with special emphasis on syphilis, is a sufficiently unusual undertaking in this country to deserve the attention of those interested in hospital administration—the more so because in this direction a comparatively virgin field of considerable promise is on the eve of development. In the hospital of the University of Michigan, a general hospital of about 400 beds for teaching purposes, a service of this type has been developed by the reorganized department of dermatology and syphilology under the direction of Professor Udo J. Wile. Until recently this hospital offered the only in-patient service in the state of Michigan which provided special facilities for the care of syphilis at all stages of the disease, and to which frank, uncomplicated syphilis is admitted without restrictions. The writer's experiences in association with this service during the period of its organization, as the first resident and later as instructor in the department, prompts this discussion of the possibilities and management of such a unit and its relation to the administrative problems and functions of the general hospital. The usefulness of such a service in the study and control of syphilis as a social problem has been discussed elsewhere by the writer.<sup>1</sup>

Prior to the reorganization of the department of dermatology at the university the university hospital cared for syphilis in the incidental way characteristic of the large majority of general hospitals in this country. Syphilis as a complication of other conditions, when recognized, was treated by the methods in vogue on the particular service in which it happened to be discovered, provided that service chose to treat the syphilis at all. With the reorganization in question, and through the courtesy of the clinical staff of the hospital as a whole, the centralization of the treatment of syphilis in the hands of one department has, with the exception of pure neurological cases, been accomplished, and the serological diagnosis of the disease carried out through the cooperation of the department of dermatology with the laboratory of the State Psychopathic Hospital. The clinical recognition of the disease has been remarkably facilitated in all departments of the

hospital by the availability of expert consultation on refer to the department of dermatology and syphilology. A special clinical and bed equipment, with several isolation wards, has been provided and several times outgrown in the rapid development of this clinic, and its usefulness as a teaching and treatment unit has been so convincingly demonstrated that the success of the undertaking can now be offered as an example worthy of general application to this field. It should not be forgotten that this movement is part of the general tendency, to which medical schools are responding, to recognize the complexity of the problem of syphilis and to provide a staff of specially equipped men in association with the specialty of dermatology to bring the resources of expert knowledge to bear on it.

The writer's hospital and dispensary experience have impressed him with certain advantages which accrue to the general hospital from the development of a special service for syphilis. Not the least of these is the attraction offered by special provision for this disease to competently trained specialists who can give the hospital the benefit of expert knowledge both on diagnosis and treatment. In the teaching hospital, where its advantage for students is obvious, as well as in the nonteaching, patients should have the benefit of such provision. The frequency of latent or even unrecognized active syphilis as a complication of surgical, gynecological, obstetrical, eye and ear, and other conditions is scarcely appreciated without the means for a thorough survey. The experience of the university hospital in this regard is convincing, and has been especially impressive in the recognition and efficient treatment of syphilis in surgical patients and among the children on the eye and ear wards, in whom hereditary syphilis is an often unrecognized condition. Many of these cases—notably, in our experience, herniotomies, tonsillectomies, and pelvic operations—pass undetected until an unfavorable result arouses suspicion, or a lowering of resistance leads to a flare-up of the disease. The risk of infection run by surgeons in operating such cases is very real—in fact, so considerable, and the means of forestalling accidents so simple, that a hospital staff owes it to itself to have the benefit of them. The university hospital now has in force a

<sup>1</sup>Social Hygiene, April, 1916.

ruling which provides for the performance of a routine Wassermann reaction on every patient on his entrance into the hospital for whatever cause. A few months' experience has shown this to be a notable advance, and of inestimable benefit to all concerned. The special clinic for syphilis is prepared to meet a finding of active or latent syphilis in an entering patient by providing an intensive course of treatment which fits urgent cases on the spot for operation in a comparatively short time. The continuance of treatment during convalescence sends the patient from the hospital, not only aware of his condition, but well started on his way toward cure or arrest of his infection.

The success which attends the treatment of syphilis by the expert application of intensive methods, such as the special service for the disease can provide, is an additional reason for centralizing its management in one department. No hospital performs its duty to its patients which discharges them with a syphilitic infection ignored or treated in a desultory or haphazard manner during a brief period of hospital residence. The fact that an incidentally discovered infection is latent at the time the case is seen is obviously no reason for supposing that it will continue such. The adequate treatment of such cases calls for in-patient beds and special knowledge and observation. The ease with which the disease responds to symptomatic measures has probably beguiled the average clinician into the feeling that any physician, whether oculist, aurist, pediatrician, or surgeon, can manage the disease. One of the best testimonies the writer's experience can offer to the contrary is his own observation of the alacrity with which the other clinical services of the university hospital now cooperate in transferring syphilis to the care of the special department as soon as its existence is discovered, and the cordiality of their response to recommendations from that department.

In the matter of active syphilis, every hospital owes a duty to the community quite as pressing as its obligation to the patient. The time will inevitably come when the compulsory isolation and detention of certain types of syphilitics with contagious lesions will be a part of public health regulation of this disease as it is of the acute exanthemata. For such isolation during a short period of active treatment, in-patient facilities must be had. The desirability of such control in itself justifies making it attractive and easy to obtain. It is neither necessary nor desirable that such measures call for special venereal hospitals, to which the stigma of the disease can attach with full force, to the corresponding reduction of their efficiency. The service at Ann Arbor shows con-

vincingly that it is no disadvantage to the general hospital to have special provision for syphilis within its walls. The contagious features of the disease are such that entire control is easily possible in the body of the hospital. The social and moral aspects of the work are aided by the cloak which the dermatological service and the hospital at large can throw over the condition of the patient, who should be shielded from the mistaken narrowness of popular conceptions of so-called venereal disease. A popular treatment center for syphilis on the "sanatorium" plan might require an almost inconceivable revision of social outlook on the disease. It is, however, entirely practicable for the social control and special hygiene of syphilis to be taught, and the disease treated from a special in-patient service center under cover of a general hospital. The writer has urged this point of view in another connection. The urgency of such a need is apparent to everyone who deals with syphilis from day to day. The ignorance of even well-educated, well-intentioned syphilitics, and the appalling indifference of the negligent to the nature of their disease and the obligations imposed on them in their own and others' interest, alternately depress and exasperate their medical advisers. They deserve an enlightenment which the busy dispensary physician or even the private physician too often is obliged to overlook. Two weeks' residence in a special service of the right kind can be made to teach syphilitics what syphilis is, inculcate a sense of responsibility, and develop an intense desire for cure that has some prospect of surviving the dangerous deceptiveness of the disease. More than one patient of the helpable kind left the Ann Arbor service during the writer's residence with some comment such as this: "Believe me, since I've been in this place and seen what syphilis is, I'm going to do just what you say. It's me to get well, believe me!" This state of mind is no bad starting point, and no mean contribution on the part of the service which engendered it, to the hygienic control of the disease.

The personnel of the service at the university hospital is an important element in its efficiency. The majority of the services in this hospital are nonrotating services, on which men enter for two, three, or four years to prepare themselves for specialties. Several of them, including that in dermatology and syphilis, consider only applicants who have had a year of general hospital service. The junior of this staff, as resident, has entire charge of the ward care of patients; the senior, as a paid, full-time instructor in the university, under the direction of the professor, examines all patients seen by the clinic, conducts the



treatment of out-patients, administers salvarsan, which is only given to in-patients, and carries out such operative procedures as the ordinary practice of dermatology demands. Patients on this service, therefore, get the benefit of the care of men primarily interested in the condition for which they need relief, and equipped with an amount of experience in it which the ordinary rotating service intern does not possess, and for which the average attending physician often cannot spare the needed time or detailed attention. That there is nothing haphazard or incidental about the way in which syphilis is managed on such a service is attested by the record of the clinic, whose thoroughness of method approaches that of the Continental type, and in which, for example, infiltrates in giving salvarsan are practically unknown; the drug is given to patients presenting almost insurmountable technical obstacles, and not a single fatality has developed in more than three thousand injections in a schedule which, to the average physician, would appear to be one of heroic therapeutic procedure.

The efficiency of such a service is greatly promoted by a division of labor into clinic and ward responsibilities. Clinic and routine treatment and examination in dermatology can be made to proceed under the discipline and team work of a surgical clinic without sacrificing the interests of the individual case, which are less pressing here than on the wards. Women nurses are capable of meeting admirably the demand for a combination of high speed with accuracy and efficiency here as in any other clinical service. On the wards the question as to whether women should have charge of male syphilitics, occasionally heard at training school headquarters, can in the writer's experience be emphatically answered in the affirmative. Orderlies are necessary only for toilet and bath service. The presence of clean, efficient women as nurses on the male isolation wards of the Ann Arbor service was an invaluable influence in favor of neatness, decency, and the suppression of ribaldry. The control exercised by a permanent resident in full authority over the discipline of such wards is sufficient to compel respect for nurses, and on the Ann Arbor service such control was exercised without serious difficulty even in the writer's "red light district," in which were housed the most vicious, degraded, and even criminal types. Neither the patients nor the nurses lost anything by the contact, and the former gained by the practice of two weeks of courtesy and gentlemanly behavior.

With a total of 45 beds at its disposal, the isolation of primary and secondary syphilis on the Ann Arbor service in a manner appropriate to

this type of infectious disease, was accomplished at least until after the administration of a second salvarsan injection, through three small wards of 3 to 5 beds each. Heredodysphilia and latent cases were placed on the general medical and pediatric wards. For the isolation wards special toilet facilities were provided in order to forestall the possibility of an almost unknown form of accidental infection. Gonorrhea as a complication was treated on refer by the genitourinary and gynecological services. All patients known or suspected to be in the active stage of syphilis were placed on a "precautions" routine described below, the measures adopted being comparable to those appropriate for such conditions as tuberculosis with bacilli in the sputum, an ample provision, considering the much lower vitality of the *spirocheta pallida*.

The perfection of its cooperative relations with other clinics must engage a large part of the attention of a service for syphilis in a general hospital, and is a crucial test of its effectiveness. The development of such relations must be a give-and-take affair at the outset, whose cordiality will increase with the growth of appreciation of the seriousness of syphilis as a complication of other conditions, and the favorable and speedy effect of efficient treatment. The policy of such a department in general may properly be, as at Ann Arbor, that of expecting the transfer to their wards of all cases in which the responsibility for intensive salvarsan or mercurial therapy is to be assumed. On the other hand, cases should be transferred back to their departments as soon as the more imperative indications are met, and their antisyphilitic treatment continued with the cooperation of the dermatological service. In this way, in addition to patients in its own beds, the service is assuming a measure of responsibility for cases undergoing other forms of treatment in other parts of the hospital. As an example of the working of such a cooperative system, interstitial keratitis at Ann Arbor is treated on the wards of the department of dermatology and syphilology, through the courtesy of the department of ophthalmology, with marked success, the department of ophthalmology cooperating on local measures. Hernia cases with latent syphilis, if there are no immediate contraindications to operation, and the patient will not undergo preparatory treatment, are operated and transferred within forty-eight hours to the wards of the dermatological service, where a vigorous salvarsan-mercury therapy is carried on during the operative recovery. On the other hand, children temporarily quarantined in the contagious hospital are often continued in treatment during such isolation, and operative

cases whose condition necessitates constant surgical attention are treated on their own wards.

The standardization of its practice, in a service attempting to maintain the highest level of cooperative efficiency, easily becomes a serious problem in a large hospital. With this problem the writer was promptly confronted in the necessity for controlling the care of a wide variety of cases, contagious and noncontagious, over almost the entire hospital. The extraordinary range of dermatological conditions and the widely varying indications for their management nonplussed the nursing staff, accustomed to more uniform types of procedure. Entering cases of acute generalized eczema were plunged into soapy baths, with disastrous results, whereupon frightened nurses could scarcely be persuaded to allow cases of psoriasis to enter the bath room. The writer thereupon undertook to do away with uncertainties and stop the efficiency leak by standardizing the practice of the department through the preparation of a written manual of ordinary ward procedure, precautions, and standing orders. This device of collecting and systematizing, within one set of covers, the mass of information a nurse usually has to seek from hearsay, mouth-to-mouth tradition, conflicting instructions and typewritten sheets pasted in inconvenient corners, was successful in accomplishing for the service some of the benefits derived from the efficiency system of management as applied in manufacturing plants. The "routine" was made part of the desk equipment of all wards regularly receiving dermatological patients, and copies were filed for borrowing in the office of the superintendent of nurses. The development of this standard source of information was particularly valuable in counteracting the effect of the constant changing of nurses unavoidable in a training school hospital. Nurses about to assume responsible posts on the wards of the service were required to prepare themselves by a study of it. The head nurses who worked under it frequently commented on the satisfaction of substituting definite written instruction for the uncertainties of tradition, and on the way in which responsibility could be localized. The practice of the department maintained a highly satisfactory degree of uniformity, dependability, and smoothness of operation even to small details. The writer can vouch personally for the amount of drudgery which the system saved him, once it was under way, by doing away with repetition, explanation, interruption, and misunderstanding. The stoppage of thought waste and energy expenditure, and the often unbroken hours of leisure concentrated on the individualization of patients and the demands of original work, which

were earned for the resident by the simple phrase, "see the routine," many times repaid the labor of its preparation.

In addition to securing a standard reliability of practice, the routine aimed to enlist the active cooperation of nurses through an intelligent comprehension of the rationale of our procedures as distinguished from mechanical and unintelligent obedience. The attention of nurses was called to the refinements of nursing care, as they specifically affect dermatological patients. The matter of standard and complete ward records was given special attention, since it is on the wards that much of the value of a case for future investigation and study in the records of the department can be conserved or lost. In matters pertaining to the nursing care of syphilis the routine went into detail, with especial emphasis on "precautions," the departmental system for the management of infectious cases. The contagious lesions of the disease and their common localizations were described in ordinary terms, and the importance and technic of calomel prophylaxis for the slightest injury or abrasion, together with a report to the resident of all such occurrences, were insisted on. Special colored cards were placed in the medicine rooms of the wards, warning nurses of the necessity for observing this rule. The marking and sterilization of dishes used by active cases, the handling of dressings, clothing, instruments, and the patient himself, the use and care of rubber gloves and the danger from slight defects and pinholes, the total immersion of thermometers, and other details for the protection of both patient and nurse, were described. These explanations did away with the ignorance that makes accidents possible on the one hand, and, on the other, set at rest the indefinite fear of the disease which many had.

The after-care of salvarsan patients formed an important part of the routine, and, by its exact limitation of nursing discretion and definition of important types of reaction to the drug, repeatedly nipped potentially serious situations in the bud. After each injection the patient entered automatically on a period of twenty-four hours of special observation, diet, etc., comparable to that of an operative clinic, and supervised by a nurse with an active knowledge of what to be on the lookout for. The mercurial inunction was introduced into the service routine for the purpose of teaching patients during their residence a simple and reliable form of treatment. The technical instruction for this important procedure was given by nurses in accordance with a description in the routine. Each patient, before discharge, received at least three inunctions given in the correct man-



ner by a nurse whose duty it was to see that the patient understood the technic. Every patient in this way left the clinic equipped to cooperate effectively with his physician.

The usefulness of the ward routine led the writer to prepare a similar manual for the outpatient and clinic service. Many dermatological procedures can be as highly specialized as those of an eye, ear, or surgical clinic, and be quite as confusing to nurses called on to assist at them unprepared. Salvarsan, when given with all the exacting of rigid aseptic technic, as in this clinic, to a large number of patients is a formidable procedure, and, as the service grew, only a high degree of nursing skill could meet the demands of speed and proper technic. To hasten the development of the correct reactions, the clinic routine was so constructed as to define each of the common procedures in terms of team work, and even of individual movements on the part of the participants, and by properly arranged lists and diagrams to reduce lost motion to a minimum. The rapidity with which new human cogs could be fitted into this machine without seriously disturbing the work of the principals soon justified it, and the training school office evidenced its appreciation by its selection of nurses to meet our requirements. By these means, with staff and nurses numerically unequal to the demands made on them, and in a space absurdly small (a room about 15 feet square), with the aid of two screens, it was possible to work constantly with a potentially dangerous disease, see refers, both syphilitic and nonsyphilitic, minutely examine and take complete and, when necessary, private histories on all patients, draw the Wassermann bloods for the hospital, administer both old and neosalvarsan at the rate of from ten to twenty-five injections on two afternoons a week, hold teaching sections five hours a week, carry out diagnostic procedures, such as lumbar punctures and biopsies, and perform minor operations, all with military precision and without overtime work or the constant repetition, correction, and vexation which exhaust the nerve and efficiency of a clinic staff.

The usefulness of these two manuals convinced the writer of the applicability and value of efficiency methods and ideals to a hospital service, and in particular to one in which a disease such as syphilis is the center of attention.

The writer has also considered elsewhere the social and psychological problems for whose solution means should be provided. The situations induced by the social stigma of syphilis demand a special mechanism for the protection of professional confidence and incognito, for individualization and reeducation, requiring not only insight

on the part of the staff, but also adequate provision in such practical details as private rooms, small segregation wards, nursing discretion, and the like. The problem of an adequate follow-up on its syphilitic patients, whose treatment cannot, in the nature of the disease, be completed in a hospital residence, is considered in the same connection. The system in vogue at the university hospital shares the weaknesses of all purely voluntary control of this phase of the disease. It is at least moderately successful in inducing patients to remain under medical control and in touch with the clinic by keeping up communication with the home or referring physician and by the performance of free blood tests. There is, however, still much to be desired.

To stimulate and provide for original investigation in the furtherance of knowledge of the disease is one of the most vital obligations of a clinic for syphilis, and one whose fulfillment can be furthered only by its association with a large general and especially a teaching hospital. The clinic in dermatology and syphilology which attempts to conduct research on dispensary equipment is hampered most seriously at the outset. Fruitful investigation demands control of patients and time and facilities for study, as well as men, and these practical essentials are best obtained through the medium of in-patient beds, an adequate laboratory, and a system so highly organized as to be able to care efficiently for its patients without consuming the priceless leisure of its staff by endless petty routine and detail. Toward the achievement of these ideals the Ann Arbor clinic has made an encouraging beginning. No small part of the value of its publications has depended on the association of the clinic in syphilis with the other services of the hospital, whose expert aid has been an essential part in the completeness of investigations published by its staff. In reciprocal manner, expert knowledge of syphilis, easily available, is no mean contribution to the ability of other departments to further the advance of knowledge.

The segregation and centralized management of syphilis within a general hospital is, then, no longer to be regarded as an unprecedented experiment. As this paper is in preparation for publication, two large Detroit hospitals, the Harper and the Herman Kiefer, announce their readiness to receive syphilis as such and provide adequate treatment for it. It is to be hoped that others will adopt a similar policy toward the disease. Municipal and county hospitals especially cannot afford to ignore the obvious claims which syphilis has to special attention among the poorer classes. The relation of in-patient and dispensary treat-

ment to each other in the management of syphilis is, as in the case of tuberculosis, complementary and not antagonistic. The provision by the latter for diagnosis and ambulatory care by no means meets the whole situation. Temporary quarantine and intensive treatment for actively contagious cases, the management of syphilis as a complication of other hospital conditions, and many of the social problems of the disease, are the legitimate field of the in-patient service. No hospital providing for the instruction of students and alive to its obligations and opportunities in the field of in-

vestigation can regard itself as completely equipped without a staff and service devoted to syphilis.

The special venereal hospital, hampered as it will be for a long time, if not always, by the prejudice which its name and function create, will serve the campaign against syphilis much less efficiently than the inconspicuous hospital unit which experience is rapidly demonstrating to be a practical, valuable aid in the work of the hospital as a whole and in the general struggle against syphilis as a disease.

### CHAPIN MEMORIAL PAVILION, SPRINGFIELD (MASS.) HOSPITAL

**Private Patient Building Contains Latest Devices for Beauty of Form, Economy of Administration and Efficiency of Service—Some of the Details of Construction**  
—Wall Colorings and Furnishings in Private Rooms



Fig. 1. Chapin Memorial, Springfield Hospital. Main entrance.

**T**HIS building, recently erected in memory of a leading physician, is a part of the general equipment of the Springfield Hospital. It is the first of a series of new buildings to be erected under a comprehensive plan of development, and is for the accommodation of private patients only; it contains forty-five patients' rooms with ample toilet facilities, operating and x-ray department,

pathological laboratory, and all accessories to make a complete hospital in itself.

The building is of red brick and limestone, with steel frame, reinforced concrete, floor slabs, gypsum block partitions, and inlaid slate roof. The diet kitchens, utility rooms and toilets have tile floors and vitrolite wainscot. The operating rooms have Tennessee marble floors and white Italian



marble wainscot. Elsewhere the floors are of battleship linoleum cemented to the concrete with coved cement base. All corners and angles are rounded. The door frames are of steel and the

ings fully screened at all times. The stairways are of iron with slate treads.

The equipment of the building is complete, including an electric automatic control elevator, glass-lined Pfaudler chutes, one for soiled linen and one for the operating room waste; the "Eye-comfort" indirect lighting, the Holtzer-Cabot nurse signal system, intercommunicating and general telephones, blanket-warming chambers, and medicine closets fitted with glass shelves and special sinks.

Low pressure steam is used for heating, and high pressure for sterilizers, blanket warmers, water heating, etc.

The rooms are simply and tastefully furnished. The walls are painted a light tan color. Certain of the rooms have brass bedsteads and mahogany bureaus and chairs; others have white enameled bedsteads and white bureaus and chairs. Bureau and table tops are covered with glass over chintz. The beds are adjustable to various angles for the ease of patients.

The first floor arrangement is practically duplicated on the second and third floors, the rooms being somewhat varied in size and rental value to meet various requirements.



Fig. 2. Chapin Memorial Pavilion, Springfield Hospital. Rear and side views.

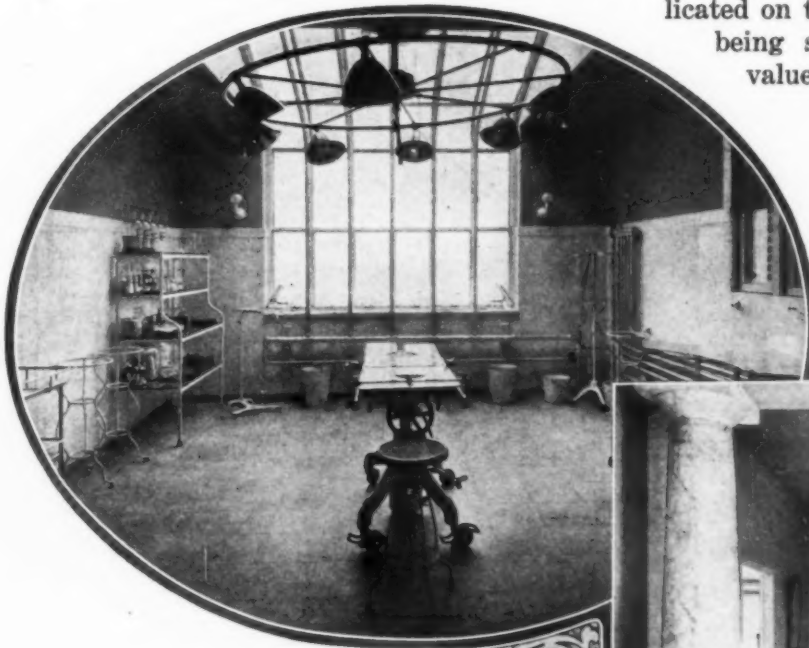


Fig. 3. Chapin Memorial. Operating room.



Fig. 4. Chapin Memorial. Reception room.

doors are without paneling. Casement windows are provided, and these and their transoms are operated by levers from within, leaving the open-

The two interior views of this institution will give an idea of the character of the inside arrangements.

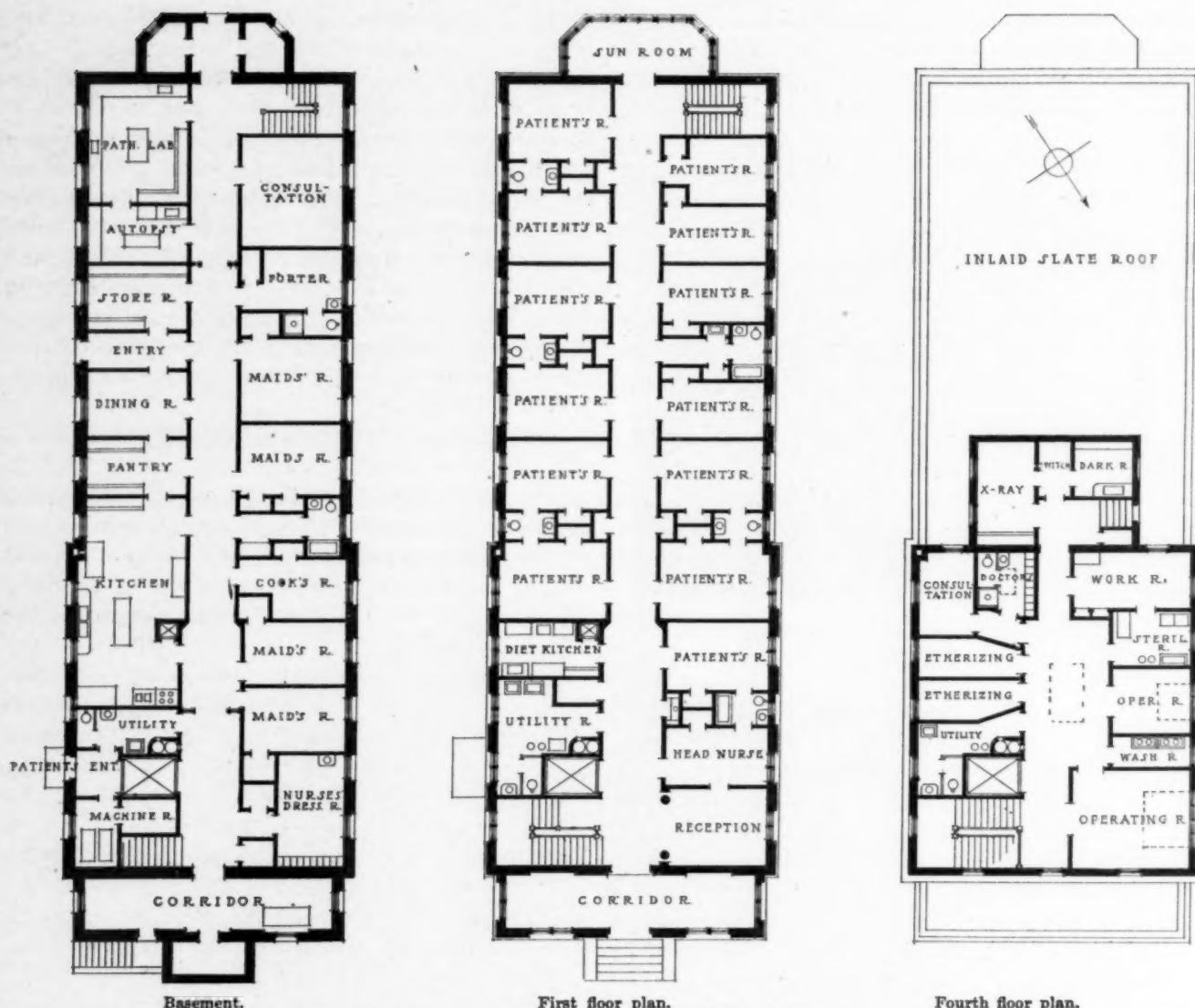


Fig. 5. Chapin Memorial Pavilion, Springfield Hospital.

### A FEW PROBLEMS OF SMALL HOSPITAL MANAGEMENT

**The Medical Staff the Most Important Factor in the Institution—Arrangement of Intern Work—Cooperation Between Head Nurses and Interns—Case Histories and Records—Trained Technists for Departments—Difficulties of Small Hospitals**

BY MRS. B. GOLIGHTLY, SUPERINTENDENT BIRMINGHAM INFIRMARY, BIRMINGHAM, ALA.

NO hospital can succeed unless it is striving for greater efficiency, and is getting the unalloyed support of the visiting staff. In order to merit the support and cooperation of the staff it is imperative that the superintendent of the hospital be ever on the alert to keep the organization and management of the hospital up to the highest degree of efficiency. Such an undertaking is no little task, as most every one connected with hospital management well knows. This is especially true in the smaller hospitals, and in those which are unendowed, and have to depend on fees alone for their support. Large hospitals which are the recipients of large donations and generous en-

dowments are spared many of the worries and difficulties to which the smaller institutions are frequently subjected.

The hospital is no longer merely a place to send people who are sick and injured after a diagnosis has been made, but is supposed to be a scientific institution provided with modern equipment and laboratory facilities requisite to the advanced methods of diagnosis and treatment, and to maintain an organization capable of utilizing such equipment to the best advantage, and to the best interests of the patients. This, as I have intimated already, is much more easily done in institutions in which the volume of work is large, and



available funds are to be had aside from those collected as fees from patients.

Where the volume of work is sufficient to justify it salaried experts may be placed in charge of the more important laboratories. In the smaller hospitals, those, for instance, with a capacity of 75 to 100 patients, such a course as mentioned above cannot be pursued, as the end will not justify the means. It is essential, and I might say imperative, that in institutions of this size the facilities for diagnosis and treatment must compare favorably with those used in the larger places if we would have them merit success, and retain the confidence and support of the medical profession.

The problem for solution then, is: What can we do to bridge the difficulties of the smaller hospitals? The first question to dispose of is "case histories." In the smaller institutions where there are only one or two interns to do all the work the matter of case histories has been notoriously neglected. The explanation of this is not difficult when we take into consideration the variety and multiplicity of duties that devolve upon the intern of a small hospital. In the larger institutions this work is usually assigned to one of the junior interns, who is responsible for its being done, and who, usually, has time to see that it is done well. This difficulty can in a great measure be overcome through the cooperation of the head nurses and the interns. Make it the duty of the head nurse of each department to get a history of every case immediately after receiving the patient. A special form of blank should be used for this purpose, which is so arranged that it can be supplemented and approved by the intern at a convenient time. Another, and more difficult, matter to handle is that of reliable laboratory aid. The intern as a rule is not an expert pathologist, and, if so, has not sufficient time in connection with his other duties to render expert assistance. I can conceive of no better way to remedy this obstacle than for the board of directors to adopt a broader and more liberal policy by appointing a pathologist to do this work on some equitable basis. To make the work sufficiently interesting and remunerative for the pathologist it would be necessary to have the support and cooperation of the visiting staff. The x-ray laboratory, which is now a necessary auxiliary to every hospital, can be managed in the same way.

The question of capable nursing is one of extreme importance, and often of grave concern. Many institutions have suffered serious and even permanent embarrassment through the mistakes of ignorant, careless, and unskilled nurses. Nurses, like people in other walks of life, are not

infallible and will continue to make mistakes; however, these should be of a minor nature, and of infrequent occurrence. A nurse that is continually making mistakes is not suited to the work, and the sooner she abandons the calling the better it will be for herself and humanity. Probably, in no other department of institutional work is the superintendent of nurses more sorely taxed than in her selection and management of pupil nurses. She should be as an executive very astute in her judgment of people, and tactful in methods of discipline. Nothing speaks better for a superintendent than the personnel of her nurses, and the efficiency of their work.

The relation of the physician to the hospital is a very close and complex one, and a lack of consideration and respect for the physician's rights and privileges has often brought discredit to the superintendent and disrepute to the hospital. Every physician connected with a hospital should receive every possible courtesy and consideration from the hospital management. The management should cooperate with the physician in an effort to give each individual patient the highest type of service. It is not infrequent that a physician complains that he is not getting the support of the hospital in the management of his cases. This is a grievance that should never arise. No superintendent, intern, visiting physician or nurse should ever do or say anything that would tend to disparage the attending physician, irrespective of the volume or quality of his work, or of his financial interest in the institution. I cannot speak in terms too strong against coalitions that exist in some hospitals in an attempt to promote the interest of some certain man, or set of men. Such a policy can never build up a strong and worthy institution.

It should be the purpose of the entire hospital management and visiting staff to work in unison to one chief end, that of rendering the highest type of scientific service to each individual patient.

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Except in a few cases well known to physicians, the danger of admitting fresh air directly is very much exaggerated. Patients in bed are not peculiarly inclined to catch cold, and in England, where fuel is cheap, somebody is indeed to blame if the ward cannot be kept warm enough, and if the patients cannot have bed clothing enough, for as much air to be admitted from without as suffices to keep the ward fresh. No artificial ventilation will do this.—Florence Nightingale.

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The want of fresh air may be detected in the appearance of patients sooner than any other want. No care or luxury will compensate for its absence. Unless the air within the ward can be kept as fresh as it is without, the patients had better be away.—Florence Nightingale.

## TENT COLONY OF THE MASSACHUSETTS GENERAL HOSPITAL

## Out-Door Ward Proves Economical and Beneficial—Method Found Satisfactory for Care of Patients During Renovation of Wards

By HAROLD W. HERSEY, M. D., ASSISTANT RESIDENT PHYSICIAN.

FOR several years it has been the custom at the Massachusetts General Hospital to move a certain number of patients into a tent ward as early in the spring as weather conditions would permit, and to maintain this ward until the cold fall nights have made a further stay impracticable.

The first tent colony was established in the hos-

June 13 to November 1, and during the season 90 medical patients were cared for. The experiment proved a decided success, and since that time has become an established custom.

The first object of the colony has been the removal of all the patients from a ward, thus leaving it free for necessary cleaning or painting, the laying of linoleum, or other renovating. By this

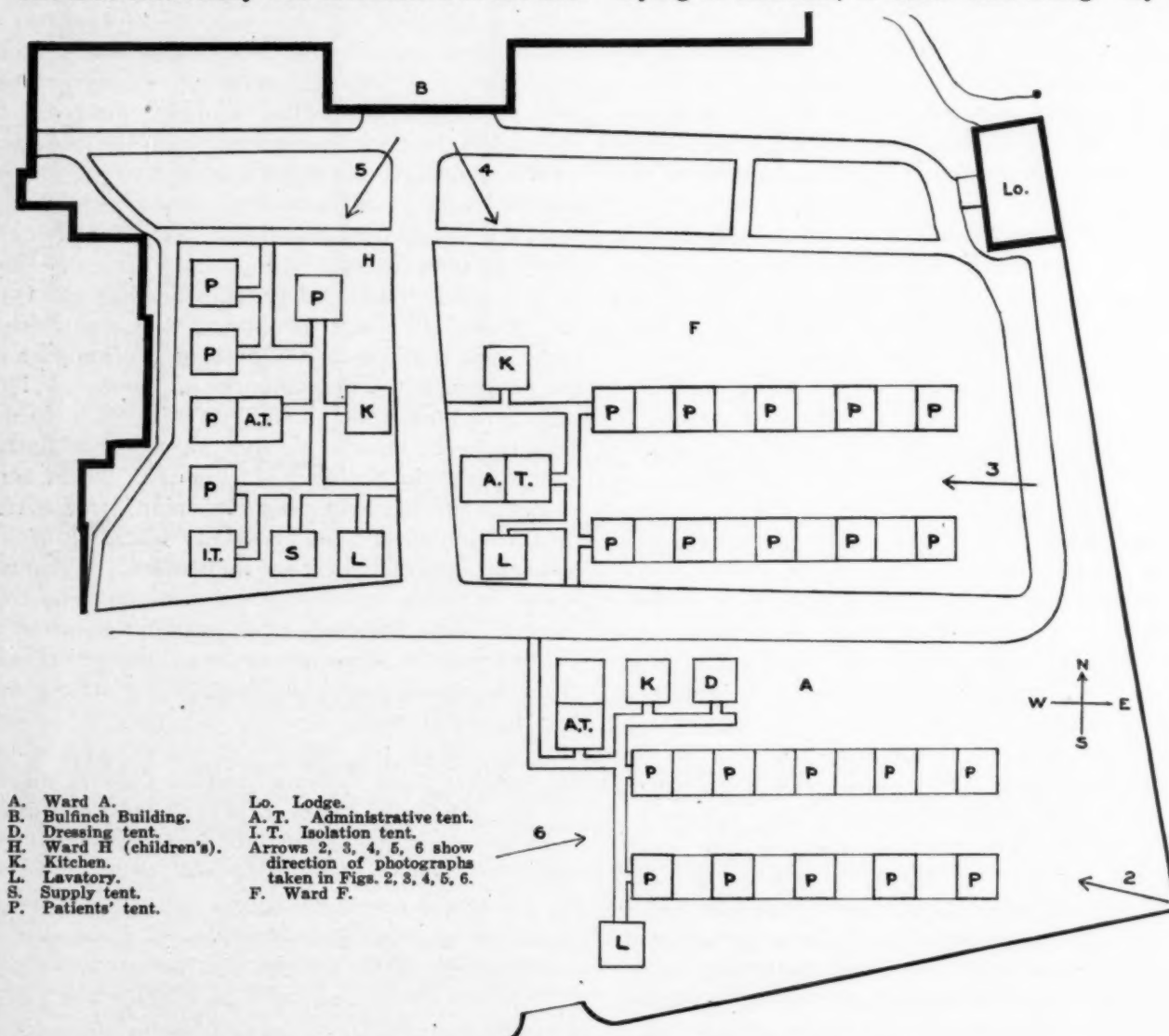


Fig. 1. Tent colony of the Massachusetts General Hospital. Ground plan.

pital yard during the Spanish-American War in 1898 to facilitate the care of the large number of typhoid cases among the soldiers. When in 1907 it became necessary to completely renovate one of the wards, a similar colony was established, to which the patients of that ward were moved during the alterations. There were accommodations for 18 patients. The ward remained open from

method the work may be accomplished more rapidly and completely, and without confusion or discomfort to the patients. When the ward is again ready for occupancy, the patients from a neighboring ward are moved into it, rather than moving back the original patients, thus avoiding unnecessary transfer.

The second object is to give as many people as



possible the benefits of out-of-door life. This applies not only to the adult patients, many of whom are placed in these ideal hygienic conditions for the first time, but also to the children, who are much happier in the tents and decidedly benefited

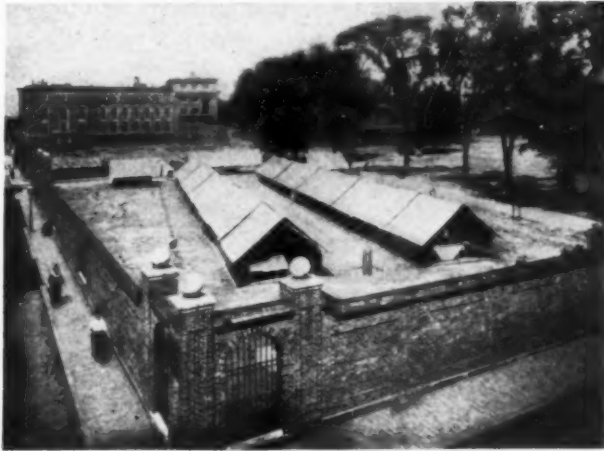


Fig. 2. Ward A (as it appeared in 1913 and 1914). Arrow 2 in Fig. 1 shows the direction in which this view was taken. The lawn seen behind the trees at the right of the path was occupied in 1915 by wards F and H.

by out-of-door treatment. The health of the nurses is improved. They enjoy their work in the open, and seem less tired at the close of the day than when on regular ward duty.

Since 1907 the type of case admitted to the wards has changed, and for the last few years only male surgical and genitourinary patients have occupied the adult ward, an additional ward being occupied by the children.

This year we were confronted by an unusual

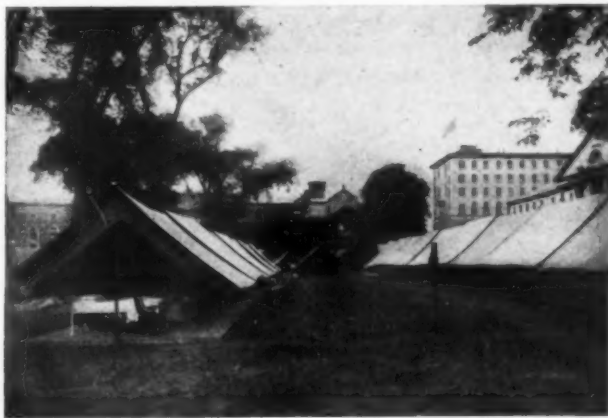


Fig. 3. Ward F. (See arrow 3, Fig. 1.) This shows the two rows of five tents, each joined by a connection fly. The tent walls are rolled up, allowing a free circulation of air. In the center of the picture is the administrative tent, while in the background are seen the tents of ward H. The Bulfinch Building appears at the extreme right of the picture, over the tent tops.

building problem. A new eight-story building to accommodate 100 patients was contemplated; two wards, with a total capacity of 28 beds, were to be torn down; a third building, with a capacity of 16 adult beds and 2 cribs, was to be moved a consid-

erable distance, elevated, and a corresponding unit built beneath it; the construction of a new administrative building had begun. It was necessary, therefore, to plan for the accommodation of some 40 patients under canvas in addition to the children's ward, and to arrange these tents in such a manner as to in no way interfere with the building procedures.

The lawns in front of the Bulfinch building were found to be ample for this purpose. The first tents were ready for occupancy on May 11. Forty patients were transferred—20 to ward A, the male surgical and genitourinary ward, and 20 to ward H, the children's ward. On May 20 ward F, a new unit, was completed and occupied by 20 male surgical cases. This gave a total of 60 patients in the tent colony. An extra crib was placed in the isolation tent for use if a contagious case were suspected.

The accompanying diagram (Fig. 1) shows the



Fig. 4. Ward F. Taken from the front of the Bulfinch Building (arrow 4, Fig. 1). The path and horse chestnut tree at the extreme right of this picture appear at the extreme left of the next picture (Fig. 5).

general plan and arrangement of the tents. The two adult wards A and F were arranged in two parallel rows of five tents each. The three inner tents of each row were joined to their neighbors on either side by an extra tent fly, the ridge pole of which was supported by the tent pole of the neighboring tent. This gave a continuous sheltered walk between each two tents of the group. At one end of the row was placed the office or administrative tent, the kitchen, and the lavatory. Ward A was further provided with a smaller tent 12 by 13 feet, in which the surgical dressings for ambulatory cases were done. Within was a framework of somewhat smaller dimensions, which was covered with regular wire window screen to exclude flies and insects.

The children's ward (H) was laid out with two tents on either side of the administrative tent. Opposite and facing the office was the kitchen, while on the south were the supply and lavatory

tents. A single tent north of and at right angles to the office completed this ward. In all thirty-six tents were erected as follows: Ward A, 14; ward F, 13; ward H, 9.

The construction of the colony is according to the following plan: each tent is provided with a firm floor of  $\frac{7}{8}$ -inch spruce on 3 x 4-inch joist, which is continuous with a 4-foot board walk, communicating with all the tents of the group. The regulation United States army hospital tent



Fig. 5. Ward H. Children's ward. From the same point as Fig. 4. (See arrow 5, Fig. 1.) Four cribs are placed in each tent.

of heavy khaki duck is used. Those purchased this year for ward F are 14 feet 6 inches x 14 feet 6 inches. The wall is 4 feet 6 inches, and may be rolled up and held in place by ties. The height is 11 feet and the door is 9 feet high. Each has a fly with a 1-foot overhang, and the ridge pole projects a corresponding 1 foot at either end. The older tents are somewhat larger in proportion, and have a screened vent at the top, opening into a prismatic chamber for further ventilation.

Each adult tent accommodates 2 patients, and contains 2 beds, two chairs, and two small tables. Each is wired for electricity and provided with a portable electric light. The beds are the regulation white enamel iron hospital bed, with firm steel band supports for the mattress rather than wire springs. They are provided with two mattresses, and plenty of blankets are available.

The kitchens contain a soapstone sink, with running hot and cold water, a steam-table, gas stove, cupboard, fruit closet, water cooler, refrigerator, and two serving tables.

The lavatory is provided with hopper, sink, toilet, and bath tub, all with sewer connections. A partition through the center forms two compartments for toilet purposes. Racks for urinals and bed-pans, solutions, solution basins, hot water bags, and medicine glasses complete the equipment.

The administrative tent contains a desk and

telephone for the head nurse, a fire extinguisher, chests for linen, tables for sorting supplies, a bookcase, chairs, a chest for drawers, a medicine cabinet, and tables for sutures, ligatures, needles, and the like. In front of each administrative tent is placed an additional fly, which forms a sheltered piazza for the transaction of ward business during favorable weather.

The equipment of the children's ward is practically the same as that of the adult wards, except that 4 cribs are placed in each tent. The kitchen is also screened from flies and is entered through a screen door.

The season of 1915 has proved very successful. As stated above, the first patients were moved to the ward on May 11, 1915, and the wards were brought to their full capacity on May 20, 1915. On September 25 it was decided to move the children's ward back to the house, as the nights were becoming chilly. The other wards were maintained with perfect comfort until the late fall, and not until November 16 was any further change made; then, in preparation for the final move, ward A was abolished, and, although the temperature dropped on several nights to below 30 degrees, the remaining patients were still kept comfortable and happy. The lowest night tempera-



Fig. 6. Ward A. (See arrow 6, Fig. 1.) A fire extinguisher is placed on the pole at the center of the picture. At the left is the administrative tent and the kitchen.

ture recorded was 25 degrees. On December 5, 1915, the remaining patients were transferred indoors, and the ward was closed after a total occupancy of 207 days.

As compared with the previous three years, the following table of occupancy is of interest:

Year.	Ward opened.	Ward closed.
1912.....	May 16	November 1
1913.....	May 7	October 6
1914.....	May 20	October 22
1915.....	May 11	December 3

During the cold weather large cylindrical oil stoves were used freely to warm the tents. Each



patient was provided with heavy blankets, and occasionally the less robust requested warm water bottles at their feet. Heavy wrapping paper was placed under the mattresses to exclude cold air. The patients remained perfectly happy until the end of the season, and not a single request was received from a patient to be transferred indoors.

In wet and rainy weather the nurses were provided with rubber boots, hats, and coats. At night the pocket flash light was found of considerable value. During the latter part of the season one tent was set aside as a recreation room or "club house," as some of the patients called it, where the ambulatory patients gathered on bleak days for cards, dominoes, and smoking. A large coil of steam pipe, occasionally augmented by oil heaters, furnished sufficient warmth.

The following table, made out on June 13, 1915, may be of interest as an indication of the type of cases<sup>1</sup> treated in these wards:

## WARD A

Patient.	Diagnosis or operation.	Number days after operation.	Number days on the ward.
1	Post-traumatic ulcer of foot.....	6	21
2	Subacute appendicitis .....	6	2
3	Fractured femur .....	44	44
4	Osteomyelitis of tibia.....	18	12
5	Right inguinal hernia.....	8	2
6	Subluxation of fourth lumbar vertebra..	50	50
7	Fractured dorsal spine.....	0	58
8	Fractured lumbar spine.....	0	61
9	Traumatic crush of feet.....	3	37
10	Fractured dorsal spine.....	0	25
11	Right renal calculi.....	5	9
12	Pyonephrosis and diabetes.....	0	3
13	Stricture of urethra.....	10	12
14	Obstructing prostate .....	0	12
15	Obstructing prostate, acute retention....	10	19
16	Obstructing prostate .....	0	6
17	Diverticulum of bladder.....	4	17
18	Tortion of testicle.....	3	3
19	Cystic .....	0	4
20	Specific deformity of nose.....	25	1

## WARD F

Patient.	Diagnosis or operation.	Number days after operation.	Number days on the ward.
1	Cholecystostomy .....	11	2
2	Compound fracture of femur, fractured ulna .....	17	16
3	Explorative operation for enteritis.....	12	10
4	Appendicitis .....	11	1
5	Osteomyelitis of femur.....	23	20
6	Fractured tibia .....	20	21
7	Empyema .....	24	19
8	Fractured femur .....	99	25
9	Renal colic .....	4	2
10	Septic ankle joint.....	30	10
11	Tuberculosis ischium .....	18	16
12	Septic elbow .....	16	15
13	Inguinal hernia .....	8	7
14	Osteomyelitis of femur.....	6	5
15	Amputation of leg.....	15	10
16	Removal of bone plate for sinus.....	22	21
17	Stab wound of intestines.....	34	30
18	Fistula in ano.....	4	3
19	Osteomyelitis of femur.....	10	5
20	Cholecystectomy .....	11	1

<sup>1</sup>Many of these cases were transferred from the indoor ward to the tents when the ward opened, which accounts for the large number of days noted in the right-hand column of wards A and F.

On the children's ward the same day were the following cases:

Feeding .....	4	Hernia .....	1
Pyloric obstruction .....	1	Empyema .....	2
Endocarditis .....	1	Osteomyelitis .....	1
Pneumonia .....	1	Fractured femur .....	1
Acidosis and tuberculous spine.....	1	Tuberculosis of elbow.....	1
Tuberculous peritonitis...	1	Fractured ribs .....	1
		Acute arthritis .....	1

In closing, I wish to emphasize the following points:

1. A tent ward may be established at a comparatively small initial outlay.

2. It may be maintained at a minimum expense.

3. The advantages are:

1. To the administration: (a) the opportunity to reconstruct and renovate wards without discomfort to the patients; (b) a saving of expense for labor, as the workmen can accomplish their tasks in a rapid and systematic manner, unhampered by patients in the ward.

2. To the patient: (a) the opportunity to live out-of-doors; (b) the more rapid convalescence resulting therefrom.

3. To the nurses: (a) out-door life and better health resulting; (b) less housekeeping and ward work; (c) the completion of the day's work with less fatigue.

4. Even under New England's climatic conditions it is feasible to establish such a ward in early May and to maintain it until late November, thus undertaking renovating requiring six months for completion.

5. The patients enjoy the life, and not only are they willing, but anxious, to continue it.

The most famous among the later hospitals of the Christian Orient was the Orphans-tropheion at Constantinople, founded by the Emperor Alexius (1081-1118). It was the size of a small town, situated on the eastern limits of the city, and was occupied by nearly 10,000 poor and sick of every age, religion, and origin. It had a sufficient income to more than cover all needs, but the care of the sick was in the hands of the clergy, who treated the patients through information obtained from medical books.—J. Marcuse.

It may seem a strange principle to enunciate, as the very first requirement in a hospital, that it should do the sick no harm. It is quite necessary, nevertheless, to lay down such a principle, because the actual mortality in hospitals, especially in those of large, crowded cities, is very much higher than any calculation founded on the mortality of the same class of diseases among patients treated out of hospital would lead us to expect.—Florence Nightingale.

Light is absolutely necessary for our health. The more sunlight penetrates into a building, the better it is. But there is one incidental effect which must be mentioned and which is of far-reaching hygienic importance—light promotes cleanliness.—M. Rubner.

## SMALL HOSPITAL WITH MINIMUM OF ADMINISTRATIVE SPACE

**St. John's, of Anderson, Ind., Has All the Necessities of Modern Service Without Waste of Space—Arranged for Future Growth**

BY D. A. BOHLEN & SON, ARCHITECTS, INDIANAPOLIS, IND.



Fig. 1. St. John's Hospital. Planned so that a second wing can be built to complete the design.

**S**T. JOHN'S HOSPITAL is located on a knoll and is completely isolated from all other buildings, so that all sides of the building come in direct contact with fresh air and sunlight, so essential in this type of building.

In planning the building, provision has been made for a future addition of practically the same design as the long wing already built.

The building is entirely of fireproof construc-

tion, with steel beams and hollow tile arches, hollow tile partitions and cast iron stairways and elevator enclosures. The floors throughout the corridors are of cork carpet with a border and sanitary base of terrazzo. The floors in the rooms are of white maple with a sanitary cove base of oak. All of the doors throughout the building are of sufficient width to allow a free passage of a roller bed and are of a flush type.

The building is three stories above the ground floor. The ground floor is about 60 per cent above grade, so that all the rooms receive ample light and air. The ground floor is devoted practically to the wards and to more or less private rooms for the attendants. In the administration building, this floor is devoted to the dining room, general kitchen, laundry and general storage rooms for the hospital, while the rear of the wing is devoted to lecture rooms for the nurses, pharmacy department and private rooms.

On the north side of the building a drive-

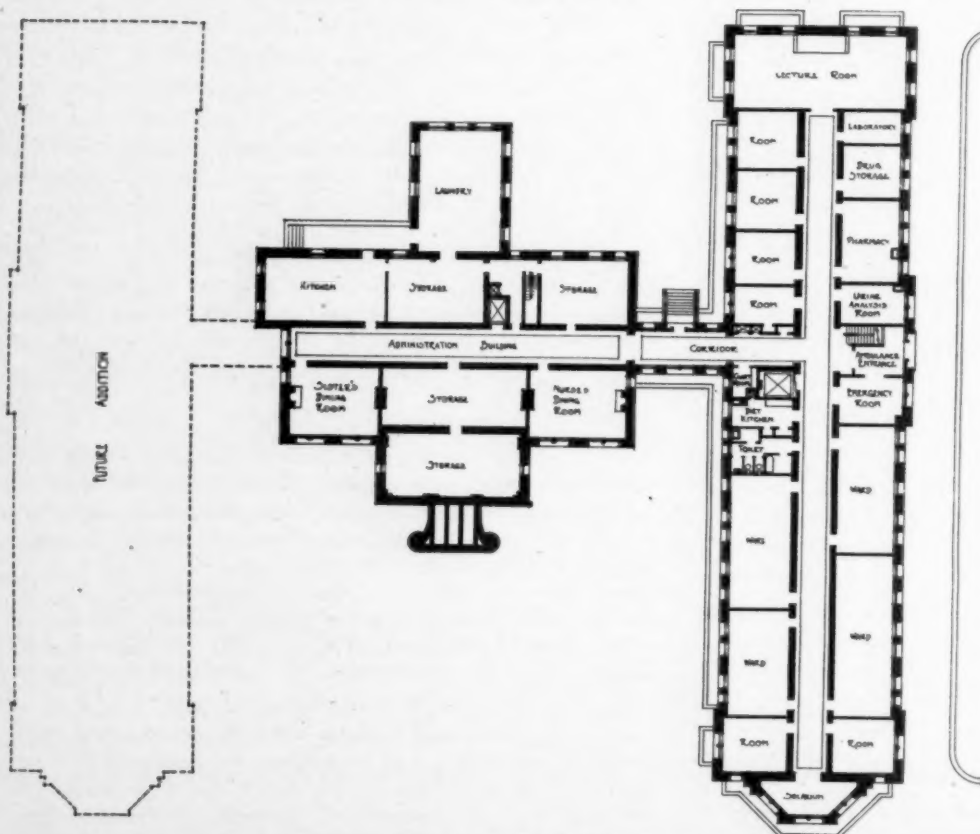


Fig. 2. St. John's Hospital. Basement plan.



way has been provided for the admission of the patients from

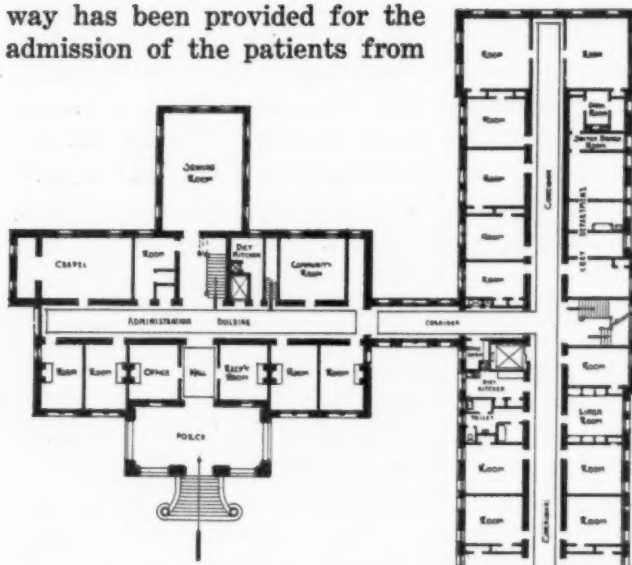


Fig. 3. St. John's Hospital. First floor plan.

ambulances and also for the general use of physicians. This entrance is in close proximity to the elevator and stairway and facilitates the quick handling of emergency cases.

The first floor of the administration building is devoted to the administrative offices and to the chapel, community room and sewing room for the sisters. In the north wing, the first floor is devoted exclusively to private rooms with the exception of the x-ray department. This department has been equipped in the most modern method, employing lead linings for the walls, isolating the switch board room and control room, and

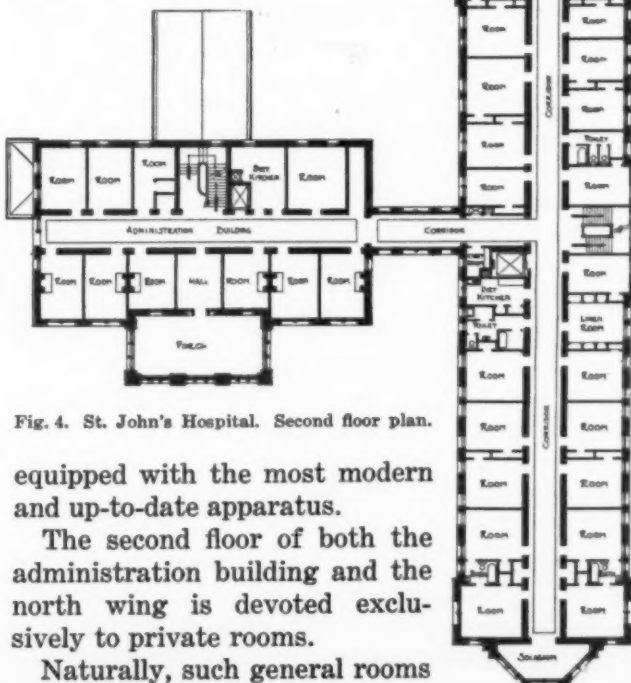


Fig. 4. St. John's Hospital. Second floor plan.

equipped with the most modern and up-to-date apparatus.

The second floor of both the administration building and the north wing is devoted exclusively to private rooms.

Naturally, such general rooms

as diet kitchens, chart rooms, linen rooms, closets, toilets, etc., are scattered throughout the building so as to be convenient to all rooms.

The third floor is devoted exclusively to the operating suites and recovery rooms. There are three general operating rooms, one maternity room, and one minor operating room. All of these rooms have high wainscotings and floors of a greyish tone of terrazzo, and all of the equipment is so arranged as to be easily accessible for cleaning, etc. This floor also contains the sterilizing rooms, dressing rooms for doctors and nurses, instrument storage and sterilizers, and etherizing rooms for each operating suite.

The building is equipped throughout with an electric automatic call system and a complete internal telephone system which is connected through the switch board to the city lines, so that it is an easy matter to reach any patient or physician in the building, either for city use or for calls to the office.

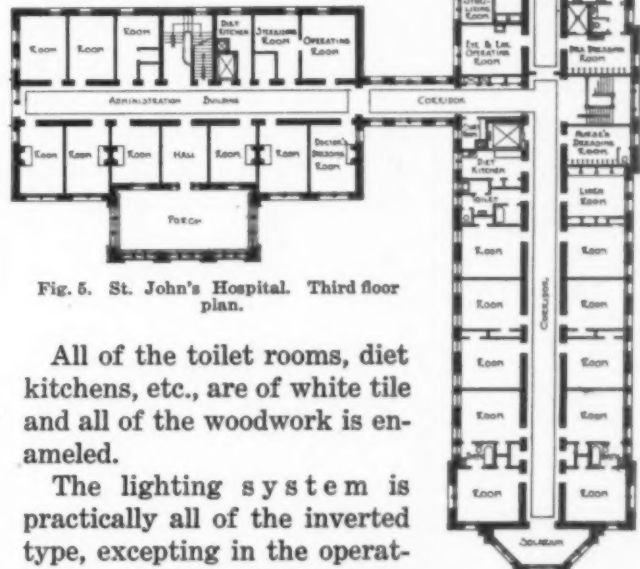


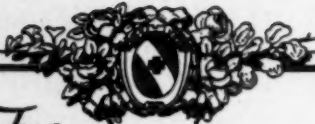
Fig. 5. St. John's Hospital. Third floor plan.

All of the toilet rooms, diet kitchens, etc., are of white tile and all of the woodwork is enameled.

The lighting system is practically all of the inverted type, excepting in the operating rooms, where fixtures of a special design have been installed.

The hospital has been equipped with the most modern porcelain plumbing fixtures and has in every way been made as complete and sanitary as possible.

The history of hospitals, especially in the Occident, is down to the end of the twelfth century closely connected with that of the xenodochia. In the western countries separate institutions were established chiefly through the efforts of Innocent III., and the founding by him of the Hospital San Spirito in Rome in 1204, which served as model for numerous similar institutions in all Christian countries, mostly under the same name, may be considered as the beginning of the history of hospitals in the Occident.—C. d'Elvert.



*The*  
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Contributors, subscribers, and readers will find important information on advertising page 34.

### Advantages of the Budget System

The question of balancing income and outgo in the receipts and expenditures of hospitals, and at the same time doing equal and exact justice to the claims of every department, is often a puzzling one to hospital managers. Many managers, in fact, resemble the unjust judge in the parable; they become weary of the importunate demands of more clamorous departments, which "trouble" them exceedingly and will not be denied, and eventually yield and appropriate to them a larger proportion of the funds than they ought to have, and a correspondingly lessened amount to equally deserving but more modest departments. In this way grave injustice is frequently done, and a premium is placed on selfishness, self-assertion, and clamor.

The only method to prevent such mistakes is through the adoption of the so-called budget system, by which, after careful consideration of the claims of all departments and an equally careful estimate of probable income, there is assigned to each department yearly in advance the portion of the income set aside for its support. The managers sit down quietly to consider impartially the claims of all, and attempt to do equal and exact justice to all departments. To this practice it is often objected that the needs of departments vary from year to year and that special emergencies

may create unusual demands. This is undoubtedly true, but it is no less true that emergencies should be dealt with when they arrive. To grant a larger appropriation than is actually required by a department to provide for a possible emergency which may never occur only creates a situation of which the selfish and inconsiderate will inevitably take advantage. Every budget should make provision for a general emergency fund, to be expended only in emergencies under the exclusive oversight and direction of the managing board. If otherwise provided, there is always danger that emergencies will be devised or discovered to prevent any return of funds to the hospital treasury. No budget can make provision against fires, tornadoes, explosions, or other unforeseen accidents in a large hospital. Such emergencies should be dealt with when they are encountered.

The budget, then, is a financial sketch, an estimate, an outlook, and often a bold facing of the financial situation. It gives certainty and precision to hospital expenditures. It substitutes practical business ability for the so-called "life of faith" which has so often marked the career of many charitable institutions and not of hospitals alone. Such faith is a source of weakness and extravagance and tends to ultimate ruin, and should be abandoned. Every hospital should know how it stands financially every year at the beginning of the year, and the only secure method is by the adoption of a definite annual budget to control expenditures.

HENRY M. HURD.

### Dr. Lambert's Paper

On other pages of this number will be found a paper by Dr. Samuel Lambert, dean of the College of Physicians and Surgeons of Columbia University, which is a study of plans for a large teaching hospital, intended as a preliminary or guiding plan for the proposed new Presbyterian Hospital.

This paper is most timely just now, when prosperity in this country is commencing to release funds for hospital expansion, and just when, too, we are trying to disentangle our hospital architecture from certain European standards that are not only being discarded by the countries in which they originated, but which never contemplated conditions under which American hospitals must do their work.

Let not architects, designers, and administrators of small hospitals dismiss Dr. Lambert's paper as applying only to a great teaching institution, and consequently of no interest to them. As a matter of fact, so far as the patient and his care are concerned, there is no difference whatever be-



tween a ten-bed and a thousand-bed hospital; the requirements of light, air, nursing attention, and medical service are precisely the same, the only difference being the processes, architectural and economical, by which the end is to be attained.

Dr. Lambert has given us some studies of the ward unit, which are most illuminating; perhaps his plans are overelaborate for the purposes of the small hospital. But what he plans to do for his patient, the small hospital must do for its, and he is planning to do it in the way that will save much time, always convertible into terms of money, not only for the teaching and service medical staff, but for the administrative forces.

This unit plan of Dr. Lambert's is worthy of very careful study by all those who must bear a share in the responsibility for hospital construction in the near future; not only the unit itself as an independent thing, but its relation to other features that must serve it—the laboratory of pathology, the x-ray rooms, the diet kitchens, the sterilizer equipment, and the nursing conveniences.

Let us commend this paper to every reader of *THE MODERN HOSPITAL* as one of the most studiously constructive pieces of hospital planning of recent years. The paper was written for and published in the *Columbia University Quarterly*, to which we are indebted for the use of the illustrations.

#### Proposed Massachusetts Inspection Law

With almost the regularity of the seasons a proposed change of the nursing laws of Massachusetts has come up before the Legislature of that state, and it seems almost puerile for so small a difference to keep the hospital and nursing professions apart. The bone of contention at this particular time is the following provision:

"The board (that is, the board of registration) shall have authority under this section to investigate at any time the training schools for nurses in this commonwealth for the purpose of determining their fitness and efficiency, as shown by their general equipment, by the character, the methods, and the extent of instruction given therein.

"For the purpose of conducting this investigation, the board may employ a person legally entitled to R. N. This selection shall be made from names presented by the Massachusetts State Nurses' Association."

The existing law provides that a nurse, to enjoy the title of R. N., must have had two years' training in an approved training school and must have been granted a diploma by that school before applying for the examination at the hands of the state board.

It seems to us that the two contentions in this whole matter are (1) the qualifications of the

nurse who is employed for this inspection work, and (2) the authority of this nurse to order any changes that she thinks ought to be made.

The hospital people who have opposed this law, and also many members of the medical profession, including the chairman of the State Board of Registration, Dr. Charles H. Cook, contend that a nurse who has had no further preparation than the two years of study in a training school could not possibly be qualified to pass on the efficiency of the methods or the sufficiency of the facilities for the training of pupil nurses. These groups of people also doubt whether one who has had no other training than that of a nurse is qualified to pass on the mechanical equipment of a hospital—for instance, its architectural arrangement, its plumbing, and the sanitary devices.

It occurs to us that the whole matter could be most intelligently settled if all parties could agree that the woman employed as inspector on this work must have had at least five years' executive experience at the head of an approved hospital. A nurse who has specialized in dietetics could not possibly be a good inspector under this law because she would aggrandize her own specialty, and the same would be true of any nurse who had specialized in any one thing; but the woman who has been superintendent of a recognized hospital for as long a time as five years would have learned to judge of the value of the different departments of the institution, she would have learned the difficulties in the way of making changes, and she would also have learned what changes it was possible to make for the convenient teaching of pupil nurses within the financial limitations of the institution involved.

If this change in the qualifications of the training school inspector could be agreed on, the rest of it would be very easy. It is very certain that the hospitals cannot have too much inspection—of the right sort.

#### Autopsies Increase in Number

The first annual report of the Peter Bent Brigham Hospital has just been issued. It is an inspiring chronicle of progress from cover to cover, a progress of the kind that means very much in hospital efficiency in this country. It is fortunate that there are such hospitals as the Peter Bent Brigham, whose endowments afford opportunities for the kind of work we all know should be done, but for which most hospitals do not have the funds.

There is one particular feature in the Peter Bent Brigham report that seems to overshadow everything else, viz.—the large number of autop-

sies available for a study by the scientific staff. There were 252 deaths in the hospital since the institution was opened for the admission of a few patients in January, 1913. These deaths yielded 147 autopsies, or 58.5 percent, which is a phenomenal percentage of autopsies for this country, and is eloquent of the fact that we are making progress toward a time when all post-mortem conditions can be made available to the scientific world for study and comparison.

These figures, 58.5 percent of autopsies, are not approached in this country, excepting by Johns Hopkins Hospital, which in one year attained 62.6 percent; but the Massachusetts General Hospital, whose staff is most active and inquiring in a scientific way, during the last year available for comparison—viz., 1911—had only 30.1 percent. The University of California Hospital in 1912 had 56.8 percent; but the above three institutions are, first of all, teaching hospitals, and, secondarily, havens wherein the sick may be cured and where they may find the comforts and even luxuries attained in the modern institution.

But, on the other hand, Bellevue, that ought to have had a large percentage of autopsies, had only 11.8 percent; the Boston City Hospital, another municipal institution, had only 14.7, while most of the private institutions run very low in the percentage of autopsies, as, for instance, the Presbyterian Hospital, New York, that had 24.5 percent; the New York Hospital, 20.6 percent; St. Luke's Hospital, New York, 14.4 percent; and Mount Sinai, limited in the number of its autopsies by the prejudices of its orthodox Jewish patients, had only 7.3 percent.

In Europe the percentages are very high, and even in Canada they bespeak a liberal and inquiring attitude on the part of the people, especially the scientific people, that interprets itself in the very definite leadership in pathology that those countries still hold; as, for instance, the Montreal General Hospital had 86.4; the Royal Victoria Hospital of Montreal, 67.8; the University College Hospital of London, 84.4; St. Thomas Hospital, London, 77.4; while the German hospitals run into the 90's, with the Allgemeines Krankenhaus of Vienna topping the list with .97, the University Hospital of Breslau following closely with 93.4, and the Charite Hospital of Berlin with 90.3.

If the Peter Bent Brigham can keep on advancing its percentages of post-mortems relative to the total number of deaths, it will be an inspiring lesson to the rest of us in this country, and it will do more for correct diagnosis than almost any other one thing that that fine institution could contribute toward the sum total of our knowledge.

Of course, autopsies mean nothing unless they are correlated with a system of the very best bedside and laboratory records, but in these particulars also the Peter Bent Brigham Hospital can excel.

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### County Tuberculosis Hospitals

The following news note in the *Chicago Herald* of January 5, of the present year, is significant:

"The Belleville (Ill.) Tuberculosis Hospital has not had a patient since it was built two and a half years ago. Monday the managing physician resigned; the hospital closed Tuesday."

Some time ago THE MODERN HOSPITAL urged on communities all over this country to insist on the passage of laws in their several states providing for the care of tuberculosis patients in hospitals built and operated by the states themselves and located where they would do the most good. There is no doubt whatever that many county and local tuberculosis hospitals are not making the best possible use of the money invested in them in the propaganda against the "great white plague." Notoriously, tuberculosis is more prevalent where there are poor people and where those afflicted can the least afford the expense of building and operating hospitals.

THE MODERN HOSPITAL believes that tuberculosis ought to be treated, from the standpoint of the public health, precisely as insanity is, and that localities should not be burdened with the creation and maintenance of these hospitals. No doubt a great many more tuberculosis hospitals must be built than are in existence today, and only a very small percentage of the work is being done that must be done if the most insidious and threatening disease of our age is to be controlled and terminated, but it is not helping in this work any to build hospitals for this class of patients where there are no patients and to leave large, thickly populated, helpless communities unprotected by properly built and properly equipped hospitals.

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Natural ventilation, or that by open windows and open fireplaces, is the only efficient means for procuring the life-spring of the sick—fresh air; but to obtain this the ward should be at least fifteen to sixteen feet high, and the distance between the opposite windows not more than thirty feet.—Florence Nightingale.

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Perhaps the most delicate test of sanitary conditions in hospitals is afforded by the progress and termination of surgical cases after operation, together with the complications which they present. The statistics of medical cases, although affording important data for our purpose, are of themselves imperfect indices of healthfulness of wards, but it is otherwise with operation cases.—Florence Nightingale.



## COMPULSORY HEALTH INSURANCE FOR EVERY INDIVIDUAL

### Preventive Medicine Demands That All Shall Have Access to Sound Advice as to Physical Condition and Treatment in Incipient Stages

BY OLGA S. HALSEY, M. A., NEW YORK

Health insurance offers a new method of conserving health, both by curing illness and by preventing its occurrence. But health insurance measures now before the legislatures of Massachusetts and New York, and in operation in Germany, Great Britain, and eight other European countries, is not the voluntary insurance already slightly developed in this country, but is made obligatory for wage earners. Under the haphazard voluntary system at present existing, many of those most in need of protection have little or no medical assistance unless they accept charity. In contrast to this, the introduction of the compulsory feature makes the new method of insurance a more effective agent in health conservation, since it protects all workers. Thus the bill now before the New York Legislature provides that all manual workers and all others earning less than \$100 a month shall be insured, and that each insured person shall receive necessary medical care, cash benefit for two-thirds of wages for a maximum of twenty-six weeks, while dependents shall receive a small funeral benefit on the death of the wage earner. The more adequate care for the illness of wage earners will be an important factor in conserving health and prolonging life. Moreover the contribution of the employer toward the cost of insurance, as provided in the New York and the Massachusetts bills, will give a financial incentive to improve sanitary conditions, thereby decreasing the amount of sickness and his expenditure for insurance. Thus, in general, the measure is both a cure and a preventive of illness.

The prolongation of life expectancy may be accomplished by three methods—by improving the chances of life for the newly-born child, by minimizing the chances of death from contagious diseases, or by diminishing the deaths from diseases of adult life. Although a marked improvement in the average length of life has occurred during the last fifty years, it is largely due to the decreased death rate at the younger ages of life.

Although the expectation of life for the newly-born child in Massachusetts has increased practically 30 percent during the last century, due to better sanitation, better knowledge and care of the family, and care of the feeding and growth of children, there is room for further improvement. The experience at the Fulham Infirmary is cited to show that the number of infants born with marked physical inferiority is greatly diminished when the child receives prenatal care, or when financial or sanitary conditions are more favorable. Dr. Abraham Jacobi, in his presidential address to the American Medical Association, concluded that the least that could be done was to reduce the mother's working hours during pregnancy and to afford a prolonged rest following birth. Under a system of health insurance it is possible to provide medical care and a cash payment for insured women unable to work during pregnancy, as well as a cash benefit for a limited period following confinement. Provision may even be made for a nursing benefit paid in cash to employed women who remain at home to nurse their babies.

Infant mortality may also be reduced by an improvement in the obstetrical aid. Obviously, progress might be made in the rural districts of Pennsylvania, where remote from hospitals there are annually 100,000 births, attended

by underpaid doctors. Of each one hundred deaths of children under one year, two and two-tenths are due to injuries at birth, ten occur on the first day, and thirty-four during the first month. Most of these children might be saved through more perfect knowledge and by more skillful attendance than half the population now receive. This situation might be bettered through provision in a health insurance system for obstetrical aid to insured women and to the wives of insured men. The legal right to such care will bring the evils to the front in this country, where 40 percent of the births are now attended by midwives, often inadequately trained and insufficiently supervised, and will place a very real premium on the improvement of the service, and at the same time will provide an effective method of control. Health insurance not only offers this opportunity to decrease infant mortality, but it may also decrease the deaths due to contagious diseases. If the members of the family of the insured are provided with medical care, the doctor will be consulted more frequently than today in many wage earners' families, with the chance of discovering contagious diseases in their incipient stage; thus a scarlet fever epidemic resulting in fifty deaths was traceable to a single case of the disease in a child of the local milk dealer, an epidemic which might have been prevented with adequate medical care.

To prolong life by preventing the diseases of adult life is the unique function of health insurance, a task which is becoming increasingly urgent in this country, for there is a marked increase in the death rate at ages over 45, although deaths are decreasing in the early years of life. Even though an increase in adult mortality is perhaps a natural accompaniment of the diminished infant mortality, the very rapid rate of increase of deaths from diseases of the heart, blood vessels, kidneys, and nervous and digestive systems (100 percent in thirty years, according to the mortality tables of Massachusetts and New Jersey) is sufficient to cause alarm. This problem, not duplicated in Europe, is a peculiarly American problem, and one to which earnest attention should be directed. One remedy—physical examinations to discover the approach of future trouble—has been promoted by the Life Extension Institute, which has been a pioneer in calling attention to these facts. If physical examinations were universal, it is estimated it would add five years to the average life of persons between 45 and 50. But, while the system of physical examinations is excellent as far as it goes, it leaves the most important gap unprovided for—namely, the provision of the needed medical treatment; thus out of 800 garment workers examined in New York city, 62 percent were found to be in need of medical attendance; 100 percent of the employees in a New York city bank were found to be on the sure road to diseases of the heart, lungs, kidneys, or blood vessels. Unless medical care is offered, the rare discovery of impending illness is of no avail, since many are unable to command the necessary treatment. That other wage earners do not have medical attendance has been revealed in a recent study, which shows that 40 percent of those actually ill had no attending physician.

Health insurance can check these degenerative diseases by providing medical care for the insured workers. The accessibility of the doctor will increase the detection of diseases in their incipient stages. What may be accomplished in the field of tuberculosis prevention alone is shown in the estimate that today in New York city, in spite of the well-organized antituberculosis campaign, there are 50,000 cases. Of these 50,000, only 37,000 are known to the Board of Health, and only 24,200 are known to be under treatment. This one disease the German in-

validity funds have found to be one of the greatest causes of permanent invalidity and to absorb two-thirds of its expenditures. The result has been a preventive campaign of exceptional importance, undertaken through lectures and persistent efforts both to restore the sick worker to health and to prevent the disease by improving the housing conditions.

It is not enough that a doctor be provided—surgeons, nurses, hospital care, and the necessary medicines and surgical appliances ought also to be available to the insured; and, to make it possible for the worker to benefit by this treatment, it is customary to give the sick worker, during inability to work, a cash benefit, for recovery will obviously be retarded if the patient suffers hardship on account of the loss of wages during his enforced idleness. Signs are not lacking that this provision has materially reduced mortality. The health insurance of the German empire has been a most important factor in the antituberculosis campaign of that country, which in 1884 had a higher death rate from tuberculosis than the United States, but which today, as a result, has a more favorable rate than this country. In Germany, too, the decreasing mortality in the later age periods reveals a diminishing death rate from degenerative diseases. Moreover, the duration of life has increased twice as rapidly in Germany, where health insurance has been in operation thirty-three years, as it has in other countries. Irving Fisher says in his notable monograph, "It is perhaps no accident that the minimum rate obtains in Prussia, which is probably the most progressive country in the discovery and application of scientific medicine."

In our own country, where the Metropolitan Life Insurance Company has instituted a system for its industrial policy holders (without any accessories) between the years of 1911 and 1914, there has been a marked decrease in the mortality of its members, a decrease which is greater than that for the general population. Dr. Louis I. Dublin, the well-known statistician of the company, states: "This strongly suggests that the educational campaign for better personal hygiene which the company has developed among its industrial policy holders, and especially the work of the nursing service, are already bearing fruit in improving the mortality situation. The expectation is largely confirmed by the very significant finding that the causes of death which have shown the greatest reduction are those which have been most prominently represented in the records of the visiting nurse service."

If nursing service alone can produce this result in this country, we may confidently expect a far greater reduction in mortality from the combined effects of more adequate provision for maternity care, for cash benefit during illness, and full medical care, including medical, surgical, and nursing attendance and hospital treatment. Such are some of the possibilities for life extension offered by the health insurance bills now before the New York and Massachusetts legislatures.

The Woman's Hospital of Philadelphia has a fine new children's building nearing completion. As soon as the new structure may be occupied, the training school of the institution will offer a special course for nursery maids. The Woman's Hospital was established fifty-five years ago, and 532 babies were born in its maternity ward in 1914. A feature of the new building will be electrically heated beds for infants, with provisions for maintaining the temperature at the desired degree. A milk room, where all milk used may be modified to suit the hospital requirements, is being fitted up. There will be also an open-air ward and a sun room, with steam pipes beneath the floors to make them comfortable in cold weather.

#### THE LORD & TAYLOR HOSPITAL FOR EMPLOYEES, NEW YORK

##### An Industrial Institution Planned to Meet All the Requirements of Modern Medicine and Social Service

One of the most attractive and completely equipped of the small hospitals in New York City is situated on the eleventh floor of Lord & Taylor's department store, corner of 38th street and Fifth avenue. This entire floor is dedicated to welfare work for the employees and includes not only the hospital, the eye, nose, throat, and foot clinics, but also a restaurant, rest room, open-air promenade, gymnasium and school room for the continuation work

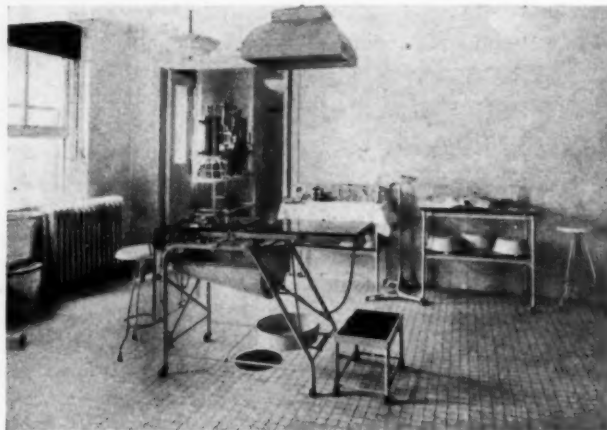


Fig. 1. Operating room.

for the check boys and girls. The service rendered by the hospital in the old store on Broadway justified this more complete equipment for welfare work in the new establishment. A nurse, always in attendance at the hospital, enters the patients' names in the reception room and passes them into the doctor's office immediately adjoining.

The doctor, on duty part of each day, makes his diag-

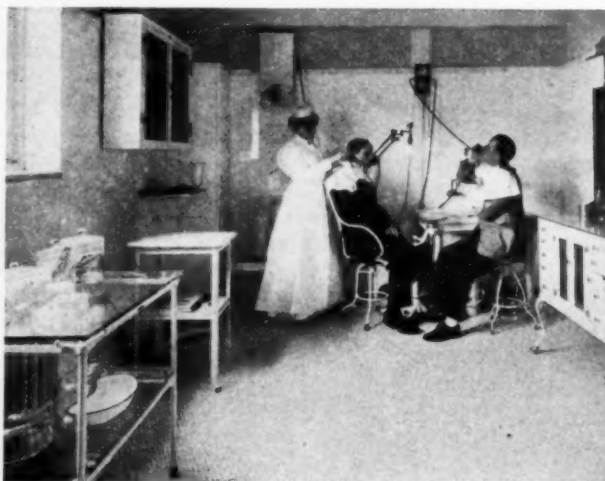


Fig. 2. Eye, ear, nose, and throat clinic.

nosis, prescribes his treatment and issues his pass—if that be necessary. This is recorded on a card, which is carefully filed for further reference.

From the doctor's office the patient passes either to the right into the men's ward or to the left into a small operating room and thence into the women's ward.

The operating and sterilizing rooms are completely



equipped with instruments and modern appliances. The floors, walls and ceilings are of white tiling.

At the farther end of the women's ward is a small laboratory for urinalysis. The floors of both wards are covered with linoleum, and the walls and ceilings tinted a soft green.

The eye, ear, nose and throat clinic is utilized in the forenoons for dental work.

Adjoining the hospital suite is a room for chiropody.



Fig. 3. The chiropodist at work.

The entire suite of rooms comprising the hospital is amply lighted by western windows which overlook the lower surrounding buildings and flood the wards with sunlight during the afternoons.

Opening from the operating room is a small chamber containing a stretcher for use in emergency cases.

Such briefly are the arrangements in Lord & Taylor's store for the care of sick employees.

To the hospital come all the trivial accident cases for treatment, and through proper care of cuts and scratches infection is almost invariably avoided. Care is also taken of the girls who have headaches, dysmenorrhœa, attacks of acute indigestion, etc., who need rest in a place free from interruption. Customers who have fainted are brought to the hospital for treatment. They also come to

the eleventh floor for treatment of trivial injuries, or perhaps only for a short rest in the midst of their shopping.

All applicants for positions are examined by the doctor in charge of the hospital before acceptance, thus minimizing the risk of infection of employees and weeding out the physically unfit.

The gymnasium is as perfectly equipped as the hospital, where the women can come during their lunch hour (a full sixty minutes) and have a dance or play games.



Fig. 4. Roof garden for employees.

Last year a women's gymnasium class met one evening a week for ten consecutive weeks. In the summer and early autumn, however, the women prefer the roof garden and enjoy to the full the fresh air and sunlight.

In the pleasant restaurant opening from the roof garden wholesome food is served employees at a reasonable price. The method of service is the cafeteria. The menu is pasted outside the room, and usually contains a variety of fresh vegetables, fruit and salads.

#### SAMPLE MENU

Soup julienne .....	5c	Tapioca pudding .....	5c
Cornd beef and potatoes.....	14c	Apple cake .....	5c
Frankfurters and sauerkraut..	13c	Baked apple .....	5c
Scalloped tomatoes .....	5c	Pie, cake .....	5c
Buttered beets .....	5c	Coffee .....	5c
Cabbage salad .....	5c	Tea .....	5c
Pea salad .....	5c	Milk .....	5c

Perhaps the rooms most used are the women's rest room and men's smoking room. These rooms are fitted with comfortable lounging and easy chairs and are filled with employees from 11 to 2 o'clock in the afternoon. Wonderfully well ventilated, with the sunlight streaming in from the east and south, it is not remarkable that employees flock to these rooms for a quiet half hour at noon.

KRISTINE MANN, M. D.

#### Statistics From Seventeen London Hospitals

The following interesting table was published in a recent issue of *The Hospital*, London:

AVERAGE OCCUPANCY OF BEDS AND STAY OF IN-PATIENTS IN SEVENTEEN GENERAL HOSPITALS, 1910-1914

	Total beds	1910		1911		1912		1913		1914	
		Average occupied	Average stay	Average occupied	Average stay	Average occupied	Average stay	Average occupied	Average stay	Average occupied	Average stay
Charing Cross .....	250	139	23	135	23	137	22	141	21	146	21
German .....	154	117	25	97 <sup>1</sup>	19	101 <sup>1</sup>	19	128	20	133	23
Great Northern Central.....	209	152	27	163	27	170	26	176	27	168	26
Guy's .....	644	533	22	545	21	539	21	526	20	522	20
King's College .....	248	188	27	187	24	186	24	129 <sup>1</sup>	21	177	21
London .....	922	803	20	821	18	817	18	795	17	800	16
Metropolitan .....	123	115	24	110	21	105	22	109	24	111	23
Middlesex .....	350	303	20	277	20	331	19	337	20	306	19
Prince of Wales'.....	125	107	22	113	22	114	23	113	20	114	24
Royal Free .....	175	144	22	139	22	141	22	143	20	146	22
St. George's .....	334	No return		294	23	318	23	317	23	314	24
St. Mary's .....	305	275	23	271	22	247 <sup>1</sup>	22	264	21	249	22
St. Thomas' .....	632	518	25	511	23	532	22	548	21	531	21
Seamen's .....	256	221	44	241	42	234	43	221	42	195	44
University College .....	305	274	25	277	24	279	24	280	24	266	23
West London .....	160	147	22	145	20	147	22	151	22	142	18
Westminster .....	213	184	25	170	25	181	25	183	23	174	25

<sup>1</sup>Special reason for low average.

# CURRENT HOSPITAL LITERATURE

ALBERT ALLEMANN, M. D., Foreign Literature.  
Army Medical Museum and Library, Office of the Surgeon-General,  
United States Army.

**Small Pavilions as Annexes to Hospitals for the Defense against Insect Parasites** (Padiglioni annessi agli ospedali per la difesa entomoparassitaria). Dr. E. Bertarelli. Ospedale Maggiore, Milano, 1915, III, No. 9.

All the belligerent nations participating in the present war had to take measures to protect their soldiers against parasitic insects. Among these the pediculi, as the carriers of typhus fever, are the most dangerous. In France the problem was solved by the erection of small pavilions in front of the entrances to military hospitals. This pavilion is usually 30 feet long, 10 feet wide, and 10 feet high. In this pavilion the patient, before entering the hospital, is freed from all vermin. His hair is cut short, he is shaved, given a warm alkaline bath, and his clothes are carefully disinfected.

**Principles of Surgical Nursing.** Frederick G. Warnshuis, M. D. The Nursing Times, 1916, XII, No. 577.

The author presents a discussion on the authority in operating rooms and a division of labor to be imposed on each individual in order to promote rapid and accurate work. The division recommended is as follows: surgeon—the recognized head, and to whom all others are subservient; first assistant—the surgeon's immediate representative, to carry out the surgeon's orders; second assistant—to see that all required instruments, needles, and sutures are promptly provided for the surgeon, to hold retractors, to sponge away blood, and act as an assistant to the first assistant; third assistant—to act as an assistant to the first and second assistant, to perform work of final sterilization and draping of the field; anesthetist—to administer the anesthetic selected by the surgeon; surgical superior—to be by preference a trained surgical nurse and to assume charge of all nurses engaged in the operation, and consequently to be held responsible for their work. Dr. Warnshuis emphasizes the duties and demeanor of surgical nurses.

**The Establishment of Dispensaries for the Promotion of Social Hygiene and for the Protection against Tuberculosis** (Sur l'institution de dispensaires d'hygiène sociale et de préservation antituberculeuse). P. Strauss. Revue d'hygiène, Paris, 1915, XXXVII, No. 9.

At the opening of the Léon-Bourgeois Dispensary at Paris, December 12, 1913, President Poincaré laid down the lines for the struggle against tuberculosis as follows: "We must establish in all large cities tuberculosis dispensaries accessible to all those who are suffering from or are threatened with tuberculosis. We must not be satisfied with receiving and examining poor patients; we must go to their homes, examine the living conditions, and get information about the resources of the family; we must give hygienic advice, and protect wife and children from

infection. We must assist individuals and families with financial and other means. Each dispensary should contain a hospital division devoted exclusively to tuberculous patients. In connection with this institution a tuberculosis hospital should be established in the suburbs, to which patients who are in need of it may be sent."

Such institutions as the President of France had in mind have been established in a number of large cities, and the tuberculosis dispensaries of Paris, Lille, and Lyons have accomplished a remarkable work in the struggle against the dreaded disease. A bill is now before the French legislative bodies which is intended to increase the number of these tuberculosis dispensaries and to make them institutions of public hygiene.

**Sanitation of Vera Cruz, Mexico, During the American Occupation.** Wm. D. Wrightson, Sanitary Engineer United States Army. Southern Med. Jour., 1915, VIII, No. 12.

In this comprehensive survey of Vera Cruz from the standpoint of sanitation, the writer reports as follows on hospitals:

The hospitals were in a very dirty, not to say unsanitary, condition and sadly in need of repair. The walls have been whitewashed, and, wherever found necessary, painted; the windows and doors properly screened and all water leaks stopped. It was found necessary to disinfect the beds and appurtenances. Clean and wholesome food is now provided. It is not intended to give the impression that the food has been of unwholesome quality heretofore, but the patients admit that there is much improvement.

There are three hospitals. First, San Sebastian, the principal one, is devoted to the treatment of males. It is provided with about 300 beds for charity cases; the wards are roomy and well ventilated, and could be arranged to accommodate about 100 more patients. It is well located in the center of the town near the business section, and is accessible from all parts. The average number of patients treated daily is about 175. All classes of diseases are treated, and a well-arranged ward for the care of yellow fever, as well as tubercular cases, is provided. Rooms are also available for pay patients, and it is here the Mexican soldiers wounded in action at the time of the American occupation were taken care of by the hands of their erstwhile enemies. San Sebastian is a very fine old building, and was erected over three hundred years ago. It has been used as a hospital for more than one hundred years, but was originally built as a convent.

Second, Loreto Hospital, set aside for the treatment of women and children. As compared with San Sebastian, it is new, having been erected but seventy-five years ago. All classes of diseases are treated here. It is primarily a charity hospital as, in fact, are all of them, though rooms are provided for the treatment of pay patients. An average of about 100 persons receive treatment at this hospital daily. It is also provided with special wards for the treatment of yellow fever. The wards and rooms are large and airy. This hospital operates an outdoor free clinic for the treatment, examination, and control of public women.

Third, The Lazaretto, as its name indicates, the hospital set aside for the treatment of malignant diseases, though, in the case of this one, smallpox alone has been its specialty. Patients of both sexes of all conditions of moral and physical servitude are treated indiscriminately. It is located on the main line of the railroad about one and one-half miles from the city proper, and, though it is securely isolated, ample means of rapid transportation and ready access are afforded. It is interesting to note that Laza-



retto was originally constructed for a purpose entirely aside from the alleviation of human suffering, having been first used as a fort.

The Zamora Orphan Asylum is operated in connection with the hospitals. It is a handsome building located near the center of the town and in close proximity to San Sebastian Hospital. It shelters about 120 orphans of both sexes, who are afforded all the advantages of instruction in trades and various arts.

**A Few Hints on Hospital Construction** (Einige Ratschläge für den Bau von Krankenhäusern). Dr. W. Block. Deutsche med. Wchnschr., Leipzig and Berlin, 1915, XLI, No. 39.

In corridor buildings the central corridor should not be less than 2.50 meters wide in order to give ample room for the transportation of patients. The elevator for the patients should be so constructed that they can be transferred to it directly from the street. The best floor covering is cork linoleum, as it is noiseless. To prevent sound transmission from one room to the other, the wall should be covered on both sides with cork plates. Double windows have a great advantage, as they keep the rooms warmer and make a good ventilation possible. By raising the lower part of the outer window and lowering the upper part of the inner window we obtain efficient ventilation, especially if the radiators are placed below the windows. Warm water heating is preferable to low-pressure steam heating. Laundry shafts are hard to keep clean and disseminate disagreeable odors. It is best to collect the laundry during the day in large well-covered tin tubs and transfer them to the basement by means of a special elevator. The points mentioned here have been realized in the new Hebrew Hospital in Hanover and have proved very successful.

**How to Prepare an Annual Report.** The Hospital, London, 1915, LIX, No. 1539.

"Some hospitals have a knack of obtaining wealth, and some have a way of seeming to have wealth thrust upon them; some are lucky, some are unlucky; some are like books with a good title—they go on and prosper—while others are unfortunately named and appear to be cursed at their birth," writes a hospital secretary in giving some excellent advice on the drafting of annual reports. He refers to the reports of some institutions as nothing but a weary repetition of previous year's efforts, "the mixture as before," and insists that, although they must contain a straightforward statement of affairs, success or failure should be written early in the tale, with reasons for gain or loss (neither gloating over the former nor mourning over the latter). They should then proceed, as briefly as possible, without forfeiting an opportunity or missing a chance that may never come again, and always be informing, but never dull.

**Specializing in Hospitals and Its Disadvantages** (Over specialiseering in ziekeninrichtingen en hare schaduwzijden). Dr. Walsem. Ziekenhuis, Amsterdam, 1915, VI, No. 10.

The advantages of special hospitals for certain diseases consist in a better service resulting from the division of labor. Medical science has developed so greatly in modern times that it is impossible for any man to command the whole field. The technic of the means and aids in diagnosis and treatment can be acquired only by long practice and experience. But specialization in hospitals has also its disadvantages. Some of these disadvantages affect especially the patient. The fact that a man has

been treated at a tuberculosis hospital may greatly reduce his chances of obtaining a position in business, or a person who has been in a sanatorium for nervous diseases is looked on with some distrust in the business world. The very fact that a patient is treated at such institutions exerts frequently an unfavorable influence on the cure. The general hospital is in these respects superior to special hospitals. By establishing special divisions for certain diseases, it obtains all the advantages of special hospitals without the inconveniences and disadvantages that go with such institutions.

**Endowment of American College of Surgeons.** John G. Bowman, Director. Surgery, Gynecology and Obstetrics, 1916, XXII, No. 1.

The American College of Surgeons has secured from its fellows an endowment fund of \$500,000, to be held in perpetuity, only the income to be used to advance the purposes of the college.

The primary aim of the college is the training of specialists in the practice of surgery, and the director, from the following, thoroughly appreciates that the realization of such a purpose depends largely on hospital efficiency and cooperation:

"Inasmuch as proper training in surgery is inseparably involved with the conduct and efficiency of hospitals, the college will seek accurate data on all matters which relate to hospitals. From time to time it will publish studies on hospital problems, the purpose being always to be helpful to the hospitals. These publications, further, will inform recent medical graduates as to where they may seek adequate general or special training in surgery. To be concrete, the college will deal with such problems as (1) the proper equipment for medical diagnosis—e. g., well-equipped laboratories for chemical, pathological, and x-ray work—(2) the proper forms for case histories and the facilities for keeping these records, (3) the management and the curricula of the nurses' training schools, (4) the specialization essential in any well-organized hospital."

**The Braun Apparatus for the Graduated Addition of Disinfectants to the Sewage of Hospitals** (L'apparato Braun per l'aggiunta tarata di disinfettanti di liquami luridi degli ospedali). Dr. E. Bertarelli. Ospedale Maggiore, Milano, 1915, III, No. 9.

Of all the methods so far proposed for the treatment of hospital sewage, the one which has given the best results and has proved the most economical is the treatment with chlorid of lime. Phelps, of Boston, states that even the addition of one part of chlorid of lime to 93,000 parts of sewage is sufficient to produce a thorough disinfection of the latter. But in practice there is some difficulty in thoroughly mixing the liquids so that the disinfectant reaches all portions of the sewage.

The apparatus of Ing. Braun comes nearest to solving this problem. It consists of a cylindrical tank of reinforced cement, which contains the solution of chlorid of lime (1:10 to 1:50). This tank holds usually 200 liters. Another tank holding 100 liters is placed a little below the first and receives the sewage to be disinfected. This second tank fills and empties itself automatically, withdrawing during each performance  $\frac{1}{4}$  liter of disinfectant from the upper tank. By a simple device the quantity of the disinfectant to be aspirated can be diminished or increased. If 250 c.c. of a solution of chlorid of lime of 1:50 is added to 100 liters of sewage, we obtain a solution of chlorid of lime in the liquid of 1:20,000. After the sewage has thus been treated it flows into a larger tank.

where it remains at least two hours and is then again automatically discharged. The most important part in the apparatus is the aspiration syphon, the upper end of which can be raised or lowered in order to aspirate a smaller or larger quantity of the disinfectant.

**A Plea for Accurate Statistics in Infants' Institutions.** Henry Dwight, M. D. Archives of Pediatrics, 1915, XXXI, No. 10.

A discourse at length on the gravity of the present lack of statistical facts on file in children's hospitals. Dr. Dwight advises better and more complete histories, with a wider range of vital facts; a closer cooperation between the pediatrician and the institution covering the work. He proposes to reverse the entire method of taking histories in order to do away with useless information and to record that which can be analyzed in case of reference.

**The Present State of the Battle Against Tuberculosis in Italy** (Lo stato presente della lotta contro la tubercolosi in Italia). Dr. P. Masucci. Giornale internaz. d. scienze med., Napoli, 1915, XXXVII, No. 17.

The beneficial influence of the sanatorium must solely be considered as an aid to the cure of tuberculosis; its favorable action is due to the well-recognized principle that hygienic conditions increase the resisting power of the organism. Brehmer, who has done so much for the development of the modern sanatorium, said: "The anti-tubercular sanatorium is hygiene of body and mind raised to its highest power." As to the tuberculosis hospitals, experiences of recent times have shown that isolation of patients with pulmonary tuberculosis is the best means to cure them and to prevent the spread of the disease.

The antitubercular dispensary was first conceived as a branch institution of the antitubercular sanatorium, but now its function is considered in almost all countries as chiefly prophylactic, and the number of these institutions has increased so rapidly that they must be considered the backbone of the antituberculosis movement. Here are gathered not only phthisics in the initial stages, but also great numbers of persons predisposed to pulmonary tuberculosis, who are taught how to prevent the disease. Besides, the antitubercular dispensary has become a center of coordination for a whole network of institutions intended to solve the problem from their various sides—people's sanatoriums, seaside hospitals, mountain colonies, open-air schools, etc. This institution thus forms the headquarters in the battle against tuberculosis.

**The Need of Psychopathic Hospitals in Our Larger Cities.** Harold W. Wright, M. D. California State Jour. of Med., 1916, XIV, No. 1.

The author demonstrates the need of psychopathic hospitals as a factor in social economy as well as a real value to the individual. A number of miscellaneous cases are cited in which prompt diagnosis and proper treatment have either terminated the patient's hospital stay or resulted in commitment to an appropriate asylum, thereby resulting in a saving to the community.

**Disinfection of Cuspidors** (La disinfezione delle sputacchiere). Dr. F. Maffi. Rivista d'igiene e san. pub., Parma, 1915, XXVI, No. 20.

The author made a series of experiments concerning the germicidal power of various disinfectants with regard to the tubercle bacillus. After having left the sputum in

contact with the disinfectant for various periods of time, he inoculated guinea pigs with the liquid so treated. In a great number of cases the animals died after a longer or shorter period of time from tuberculosis. He comes to the following conclusions: the only safe methods of disinfection are (1) boiling the sputum for five minutes in water to which 2 percent of sodium carbonate has been added; (2) leaving the sputum in contact with the following solutions: 5-percent carbolic acid for twelve hours, corrosive sublimate (1:1,000) for twenty-four hours; 20-percent formalin for twenty-four hours; 10-percent lysol for twenty-four hours; 20-percent acetic acid for twelve hours. Absolutely inefficient are 20-percent sulphuric acid, 10-percent hermitin, 2-percent cyllin, 10-percent hydrochloric acid, though these disinfectants remain mixed with the sputum for more than twenty-four hours.

**Another View on Ventilation.** Henry Sewall, M. D. Interstate Medical Jour., 1916, XXIII, No. 1.

Scientific research tends to destroy the chemical theory of ventilation and to introduce the conception that under none of the ordinary associations of life do the chemical changes induced in the air by respiration have any material physiological influence. The author believes that profound metabolic and physis dyscrasias are due to a rise of body temperature caused by physical factors—i. e., high temperature, humidity, and a possible lack of movement in the air. Dr. Sewall does not aim to present a new theory of ventilation, but rather to issue a caveat against too narrow a view of its principles.

**Disinfection of Hospital Trains.** Illust. Kriegs-Chron. Daheim, Leipzig, 1915, No. 26.

Experiments have shown that high temperature combined with formalin vapors does not kill pus cocci, tetanus bacilli, and anthrax spores, though they were exposed to the disinfectant from three to six hours. The Germans have now devised a new method of disinfection for hospital trains. It consists in high temperature combined with a rapid withdrawal of moisture by the creation of a vacuum and with the use of formalin vapors. The apparatus is a large metal cylinder 23 meters long and 5 meters in diameter, and the covers at both ends can be hermetically closed. The car is pushed into this cylinder and the latter tightly closed. The apparatus is heated by steam by means of a system of tubes. The formalin apparatus is attached to the under side of the cylinder, and the air is pumped out of the cylinder by means of an electro-motor connected with a vacuum pump. While the apparatus is heated, the air is gradually withdrawn until water begins to boil at 40° C. The sudden withdrawal of moisture is fatal to the bacteria. The injection of formalin vapors makes complete disinfection a certainty. After an exposure of the car to this treatment for five or six hours, no living germs could be found.

In a recent lecture at the Children's Hospital, St. Louis, to an audience of fifty women, Dr. Henry Schwartz, of the Washington University Medical School, expressed the view that large cities should be divided into hospital districts and a hospital established in each district. Mothers-expectant in moderate circumstances should be sent to these hospitals, Dr. Schwartz declared, in order that they might have the proper care and be free from work or worry of any kind. Proper care at this time, he said, would do much toward strengthening and improving the race. Dr. Schwartz favors a law to prohibit the employment of mothers-expectant.



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### The Education of the Nurse

To undertake to edit the Department of Nursing in *THE MODERN HOSPITAL* is to assume a task rich in interest and opportunity, but fraught with responsibility. To follow effectively one who has not only most ably conducted the department, but has not less ably administered a large hospital while building up one of the most model and modern schools of nursing, is to impose a heavy tax on one's ability. But a not less heavy demand arises from the fact that, even as *THE MODERN HOSPITAL* is contributing in a large measure to the rapid and much needed standardization of hospitals, so it should also contribute to the equally needed standardization of nursing education. This contribution we deem it the part and privilege of the Department of Nursing to make. We approach the task with not less of trepidation than of interest. Of the many problems confronting us in the nursing field, none seem to us so pressing as this problem of nursing education. What shall be the content of nursing education is a question that we believe demands the careful, critical, and immediate consideration of those who are responsible for or who are directing schools of nursing, if the nurses are to, in any degree, measure up to their ever widening opportunity of service to the community.

A very superficial survey of schools of nursing presents them, even after nearly fifty years of existence, as singularly at variance with accepted systems of education in either cultural or vocational fields. The very methods that are responsible for the breaking down of the apprenticeship system are to be found today in these schools. Excessive hours of practice and meager hours of theory still obtain. A repetition of procedures far beyond the amount required to insure tactile skill and technical efficiency is the rule—not the exception. The disposition to lengthen a service for the pupil who adapts herself readily, and to curtail a service, no matter how valuable the experience, if the pupil does not immediately adjust herself to the problems of a new branch or department of work, is universal. To the tendency to sacrifice the capable apprentice to the needs of the individual shop has again and again been attributed the decrease in efficient workmen in the trades under the apprenticeship system. A comparison of the practical experience of any group of nurse students would show a great variability—a variability not due to the inevitable fluctuations of the hospital service alone, but to the fact that the student's experience is a matter of hospital expediency rather than of required education.

In schools and colleges, lectures and laboratory practice in any subject go hand in hand; in schools of nursing, the

theoretical instruction sometimes precedes by many months the practical experience in any branch, or the reverse may be the case. Not infrequently, indeed, the course is limited to either theory or practice. All these conditions call loudly for readjustment, and we repeat that the content of nursing education cannot be too soon agreed on by all concerned in building up the educational standards of this profession.

We are presenting in this issue a survey of the modern field of nursing through a paper by Miss Nutting, of the Department of Nursing and Health, entitled, "The Education of the Nurse for the Home and the Community," and we shall hope to follow this by a series of papers dealing with the content of education of the various branches of nursing, experience in which we believe to be essential for the practice of the profession. We do not propose to take up in detail the theoretical courses—at least for the present. What we desire to consider is: first, in what branches of nursing should experience be provided by a hospital maintaining a school; second, what would be an ideal course in any given branch of nursing. It is our belief, and here some may take issue with us, that no nurse's professional education is complete whose course has not included theoretical and practical instruction in the nursing of medical diseases, including contagion and infection, surgical and gynecological cases, pediatrics, orthopedics, obstetrics, and mental and nervous diseases. Large as this program is, we are confident that instruction in the branches mentioned, together with the preliminary course that is generally conceded as essential, could be covered in three years, provided that the repetition of procedures be curtailed beyond the point required to insure efficiency; that the student nurse be eliminated from departments which, from a teaching standpoint, have little value, and her duties be limited to those directly bearing on her course. The question will probably, and very justly, at once arise as to how the institution can afford to provide such a comprehensive and demanding curriculum. The question is indeed important. We believe it can be answered. But the more vital question is, what preparation for her profession has the community the right to expect of a woman who holds a diploma from a school of nursing and is registered by the state as qualified for the practice of her profession?

Dr. Pritchett, in writing of medical education, has said: "Perhaps no other professional man, not even the priest, is allowed to enter so intimately into the individual and family life as the modern physician." Surely this may be quite as truly said of the modern nurse. No one could enter more intimately into the individual and family life than does the nurse, and it should be constantly emphasized that, whereas the opportunity of the physician is limited to a short space of time, the nurse's opportunity extends over twelve and even twenty-four hours.

The school of nursing and the state both assume a heavy responsibility when they place their stamp of approval on a nurse.

ANNIE W. GOODRICH.

### Education of Nurses for the Home and the Community<sup>1</sup>

BY M. ADELAIDE NUTTING.

A memorable ceremony took place in the city of New York one evening about five years ago when two great societies of nurses united in celebrating the fiftieth anniversary of the founding of the first training school for nurses by Florence Nightingale. Before a vast audience

<sup>1</sup>Read at the section of the Education of Women at the Pan-American Congress, Washington, January 3, 1916.



distinguished speakers dwelt long on the great services which Florence Nightingale had wrought for mankind, not in her immortal work in the Crimea, nor in her splendid efforts for sanitary reform in the British army and in civil hospitals, but in her creation of a new system of education, which we call modern nursing. How this system of training reformed the whole method of nursing the sick in hospitals and in homes, how it spread through the United Kingdom, crossed over into European countries, and eventually was brought over to America, are told and familiar stories.

The plans for this first famous school as worked out by Miss Nightingale are well worthy of careful study. Very interesting indeed are the ideas and principles laid down by her as to the range, character, and amount of theoretical teaching and practical training required in the preparation of nurses, and interesting also are the details dealing with the organization, methods of supervision, discipline, and matters relating to the daily life of the students. "No public school, university, or any other institution ever had so elaborate and exhaustive a system of records and markings," says Sir Edward Cooke in his charming biography, the recently published "Life of Florence Nightingale." In some ways she was so far ahead of her time that we have not even yet caught up with her. Her idea, for instance, of providing an adequate endowment for the maintenance of her school, and thus insuring it power and freedom to carry on its work, is considerably in advance of the general custom at the present day. There is, I believe, no training school for nurses in existence endowed or in any way provided with actual funds for its work, and the peculiar economic lines on which such training schools have developed constitute one of their main problems and most formidable obstacles to further growth.

Forty years have elapsed since Miss Nightingale's training system was brought over to this country and introduced into the nursing department of Bellevue Hospital in the city of New York. Within that period, slowly at first and later with swift and steady strides, a great profession has grown up. This profession has its schools, its societies, its literature, its branches and post-graduate work, and even its international relationships. Under quite extraordinary handicaps, which will be discussed later, it has developed in response to various needs of mankind until it has reached a point where almost every element in society is in some way or another leaning on this professional body of women. It would be difficult to present a correct picture of the number and kinds of institutions of modern life which have found the cooperation of trained nurses an indispensable factor in the accomplishment of their purposes. I recall at the moment the effort of a statistician recently to create a suitable symbol for the public health movement so rapidly taking shape all over the country, and he thought he had found it in portraying a nurse in full uniform, trained, skilled, and ready to do her "bit" against the invasion of the enemy. As nurses' work for public health is not nursing in the old and accepted sense of that term, this illustrates perhaps the point I am trying to make as to the widening serviceableness of the profession.

There are at the present time in this country about 1,300 training schools for nurses. All of them practically have been created by hospitals for the purpose of supplying a nursing staff, and it is therefore quite needless to mention that this is the main function of every school. The approach to education in nursing, then, has been through the door of hospital service, and the 40,000 student-nurses who are in training in 1,300 hospitals of America today

constitute the nursing service of those institutions. It will be readily seen that this large number of schools, which have, as it were, been forced into existence to meet the immediate current needs of a rapidly increasing growth of hospitals of many types, would offer peculiar educational and ultimately professional problems. Specialization in medicine, which has been so marked a feature of medical progress, brought a corresponding specialization in hospitals, and there arose in many of them schools which could not in the very nature of things meet the ordinary and most fundamental requirements of professional training. The helplessness of such schools has left them open to many abuses. Admission requirements were kept low in order that a large supply of pupil nurses might be constantly available, and it is the history of hospitals generally that all work which can possibly be done by pupils is relegated to them, irrespective of its educational value, and frequently of its relation to nursing at all except in an indirect and remote sense. A trustee of a progressive hospital in a neighboring community put it tersely in saying, "So far as I can see, the training school is really a maid-of-all-work to the hospital." "One of the finest things in nursing in one way, one of the most objectionable in another," said Dr. George Dock in a recent address, "is the manner in which pupil nurses have gone on for months or years repeating a routine no longer educative." In many hospitals the quarters and living conditions for pupils were inadequate and inappropriate, and in all of them the hours of work by day and by night were painfully long. It is, when one stops to consider the situation, a truly remarkable service to society which pupil nurses have been rendering in hospitals for the past half century. They have given for the care of the sick poor more in proportion than any other body of philanthropists, and the splendid generosity and ardor with which they have thrown themselves into their task, their devotion, heroism, and loyalty, have been all too little understood or appreciated. Nowhere in any country have they been equitably dealt with, as will be easily discovered by anyone who wishes to examine the situation. During all of these years, while hospitals and training schools have been struggling with their several problems, which have been briefly indicated, there have been certain forces steadily at work making for betterment of the situation. These have been those bodies of nurses within training schools who, with courage and patience, have labored to introduce new ideas and methods; bodies of nurses outside, state and alumnae associations, which have, with much energy, acumen, and persistence, worked to secure the legislation affecting the education of nurses which is now found in forty-four states; and, in these efforts to improve and dignify their profession, nurses have had the steady and loyal support of the best element in the medical profession.

To bring about any sort of uniformity of standards in training schools attached to hospitals of so many types, and laboring under such peculiar disabilities, has been a serious problem, and progress has naturally been slow and difficult. Under the circumstances the improvements in training school work which have taken place during the last ten or fifteen years are noteworthy. Entrance requirements are gradually becoming formulated and rising from the chaos into which they were thrown by the sudden and sweeping demands of hospital expansion. The period of training has been reconstructed, somewhat enriched, and lengthened to three years. Hours of duty have been modified, while the scheme of practical work in the hospital wards has been revised and pruned of some of its wasteful methods. Very marked improvement has

taken place in methods of instruction, and the required subjects are much more carefully and thoroughly taught than they were a few years ago. Specially trained teachers are being called for and supplied, and teaching facilities, libraries, and the ordinary equipment of schools in which serious educational work is carried on are beginning to appear. Living conditions are growing steadily better, and in a few of our cities very beautifully equipped nurses' dormitories and homes have been built up. The new dormitories at Bellevue and Kings County, New York, are examples of these. A very important advance is the increasing employment of graduate nurses in various capacities other than executive in hospitals. This is a highly rational and significant movement, reacting, on the one hand, to the benefit of the patients in providing them with a more highly skilled and stable service, and, on the other hand, through the increased staff, in lifting pressure from the pupils in training, in making possible shorter hours, suitable vacations, and a more rigid exclusion of unsuitable candidates for admission to the training school. Ultimately this method, as will be easily seen, will permit the expansion of training school work in a good many directions.

Perhaps the most important advance of all, however, in the education of nurses is that which is coming through the universities. Within the last few years schools of nursing have been established in three or four universities, and relationships less definite, but still very helpful, have been set up in several others. The schools of nursing of the universities of Minnesota, of Indiana, and of Washington University in St. Louis, Mo., are interesting evidence of the trend of thought which is gradually arising as to the way in which the education of nurses must develop in order to meet the well-defined, widespread, and rapidly growing demand for more highly qualified and liberally educated nurses. I do not mean, of course, that all training schools for nurses should seek to be gathered under the wings of universities, but that there should be some schools of nursing of this type in every state, carrying to a further and higher point than is possible elsewhere the education and training of nurses; for the work which is now required of nurses in our national life has gone far beyond anything that was even dreamed of by those who established the system of training which, notwithstanding improvements, still unchanged in its most vital aspects, prevails throughout the country today. As a system of education it is in certain aspects archaic. Florence Nightingale indeed—that woman of visions, of ideas—did see. "No system," she said, "can endure that does not march." She held up the ideal of nursing not only as a difficult, but as a progressive, art. "It requires," she said, "constant study and effort; constant progress is the law of its life."

The two original branches of nursing for which training schools prepared were private practice in the homes of the well-to-do, which has occupied for many years at least 75 percent of all graduates of training schools, and hospital work which for graduates was limited to a few high positions, administrative and executive in nature. These two have broadened out and now embrace so many and such varied lines of activity that it is almost hopeless to attempt to give an adequate idea of them. The modern public health movement, though the growth of recent years, is already worldwide. It has taken hold of the best minds of the time, and through them principles of preventive medicine are rapidly being developed into a science. These principles are being applied, it may be said, at present in two large main ways—one through the instrumentality of laws which compel, restrict, isolate, segre-

gate, and thus enforce certain behavior on one part of the community for the protection of the rest; and the other way aims to bring the laws of health to the people, to make such laws, as it were, their common property and thus to create such an intelligent public opinion as will insure conformity to healthful habits. In whichever way these principles of preventive medicine are applied, it appears to be necessary to rely on nurses at some stage of the procedure to carry them forward and make them effective in the lives and habits of the people. There are several hundred nurses occupied in the Department of Health in the city of New York. One large group is steadily at work in families where there is tuberculosis or other contagious disease, instituting there such measure of sanitary control as are applicable to the various situations. Another large group is working to protect the health of children in the public schools, while still another group in the milk stations of the city is trying to lift a little the shadow of infant morbidity and mortality which lies so strangely across a modern civilized world. Let us turn again to Florence Nightingale. "If you would build up a healthy nation, look to your homes," she urged. It is in these homes where 90 percent of our sick poor must be nursed, must be taught, must be pulled up to a higher and safer level of life that nurses are finding one of their most immediately urgent calls for service, one which will continue for many years to come.

The health department of New York city is thus reaching beneficently through its staff of nurses into homes, schools, and other institutions, and somewhat similar efforts are being made in cities and towns all over the country. And as the work progresses, it comes about quite naturally that new things are required of the workers, a more certain knowledge of the early signs of disease, some understanding of social conditions, and ability to investigate carefully and interpret correctly the problems with which they have to deal. Ability to teach is particularly required of nurses at work in public schools, and to make personal hygiene, for instance, for the children a living and vital subject. Ability to secure cooperation, to plan and direct work in effective and intelligent ways, is essential both in the large communities where the work of a considerable number of nurses must be organized and supervised, and in small ones where the single nurse must do all that there is to be done, and act often on her own initiative, and with such wisdom and judgment as her training has provided her. In shops and factories a good many nurses are engaged in looking after the health of young girl employees, and others are seriously studying the effects on health of various conditions in industry. Hospital social service is another important field in which the predominant interest is in health problems, and here both nurses and social workers are occupied. The work appears to call for training both in nursing and in social work.

The field of public health nursing, which ministers to the many whose health is not in their own keeping, is thus seen to be richly abounding in opportunities for the best gifts which nurses can bring to its uses. They are here rendering the most fundamental of social services.

No less interesting and important is the field provided in our institutions, hospitals, training schools, and sanatoriums. Hospitals, no matter where they are, whether in city or small town, whether general or special, are, or should be, factors of very great importance in the life of their communities. They are, of course, places where an assured degree of medical and surgical and nursing skill can be promptly and efficiently applied and maintained, but they are more than that. They are centers of a peculiarly



vital social interest, where the common good-will of the community for the sick and suffering should find its most perfect expression; they are centers also whence the best knowledge of hygiene and wholesome living should constantly radiate. Many of them, especially the larger ones, are definitely committed to organized educational work in their relation to medical schools and training schools, and others to investigation and research in special forms of disease. They are all laboratories, in a sense, frequently vast and complicated, where mankind is working out one of its experiments. To the direction and development of almost all of the smaller hospitals nurses are called for obvious economic reasons, and they should bring to such tasks far more than managerial ability or technical skill, essential as these are. The smallest of these positions is never small in one sense of the word. Into the larger hospitals the question of education enters more definitely and closely. The heads of our great training schools for nurses are, as principals, called on to exercise functions no whit less important, difficult, and complicated than those usually exercised by, let us say, the deans of colleges for women. They must be, as superintendents of nursing, specially trained administrators because of the technical problems entering into their work and of the highly organized body of workers over which they have control. They must, as principals of training schools, be educators, or they have no business at the heads of schools of any kind, since that work calls for experts. As educators they should be familiar, not only with the immediate round of affairs within their own enclosures, but also with the general progress of hospital and training school work. They are also required to study closely the various fields other than nursing into which nurses are entering, in order that their schools may appropriately enlarge or modify their schemes of instruction and training. It is incumbent on women holding these positions that they should have some weight and influence in the educational as well as in the hospital world, since their relation to education is indisputable. In all training schools there is a staff, large or small, in accordance with the need, of assistants, supervisors, and instructors, who are or should be not only highly skilled and carefully trained nurses, but women of more than common capacity in their several ways, and of such ideals and potentialities that the higher posts of various kinds in the whole field of nursing may be constantly filled from their ranks. For the handling of the practical administrative problems of institutions there is no training in the world comparable to that which a nurse receives on her journey upward through the various grades and ranks in the official staff of the hospital training school; but there is a possibility that it may develop into too long a journey. The position of instructor in training schools is worthy of special mention, since it is of comparatively recent creation and marks the newer emphasis laid on sound teaching. These instructors are first graduate nurses, but they are further prepared on the usual pedagogical lines by study of psychology, of principles and methods of teaching, and by additional work in the sciences. Since nursing methods are based on science, they must of course be affected by advances in scientific research, and it is highly important that teachers and trainers of nurses should be capable of applying new scientific knowledge and principles thoroughly, minutely, and correctly to nursing procedures.

There are several interesting fields open to nurses in institutions outside of hospitals, and among them is that occupied by the resident college nurse. Her province is not rigidly defined as yet and varies in different colleges, but in the main she watches over young students, detects

ailments in their early stages, encourages hygienic habits, and sometimes gives instruction in personal hygiene. A good many college women are turning to this work, which is carried on in a ground familiar to them.

Private nursing is still the branch of work which occupies the larger proportion of all graduate nurses. The number so employed seems to be slightly diminishing, owing partly to a wider use of hospitals among the well-to-do, and to the opening up of new fields, such as those described in public health work. There is some tendency toward specialization in private nursing, and nurses specially interested and with additional training in the care of children, in nervous and mental cases, in obstetrics, are asked for. Both in private and in all forms of public health work there is a demand for nurses who have command of at least one other language than English. Italian, German, Spanish, or some of the Slavic tongues are an invaluable addition to a nurse's armamentarium. A nurse who could speak Chinese was able a few years ago to do particularly useful work for the Board of Health in New York city, and valuable opportunities for work are frequently lost because of the difficulty in securing enough nurses who have command of languages.

It is true that people of moderate means are nowhere adequately provided for in time of sickness, but our best economists have not yet succeeded in showing us how nurses can offer any generally acceptable solution to this problem. It is an economic and not a nursing problem. The best way that suggests itself for the handling of a problem of such dimensions is through some form of insurance which will provide skilled nursing. Nurses unable to give their whole time have devised a useful system of hourly nursing, which provides skilled care for certain kinds of cases, and hospitals and sanatoriums are of course increasingly used by all classes.

Thus is spread before us in outline the wide and inviting field of activities for women which is open to those who successfully complete the course of study and training required in a modern school of nursing. From almost any standpoint such training appears to be of very great advantage to any young woman who is fitted by education and physical and personal qualities to make proper use of it. Actual requirements for admission have always been modest, and will probably never go beyond high school graduation, though there is a growing element of college women turning to this valuable field of public service, and the older schools of wide repute report a steady increase in the number of college graduates applying. The value of this training in nursing is unique and twofold, and lies, first, in the fact that it prepares not only for many definite, important, and fairly remunerative kinds of work in nursing on which the student may enter immediately after graduation, but that it also provides a peculiarly strong foundation for many other occupations in allied fields of social and public importance; and the second fact is that this training can be obtained at a minimum of expense to the student. It is really a wonderful thing to be able to obtain a valuable education, and in the very act of doing so to be performing services necessary to society and of distinct economic value. These services which are required of student-nurses in training are up to a certain point absolutely essential, and are such as would be required in a rational scheme of training in any art, such, let us say, as painting, sculpture, music, in which a fine and elaborate technic is involved and a high degree of skill must be acquired. The fact that the services the student-nurse performs are required by the hospital and needed by the patient, and therefore must be done according to certain standards, enhances in a sense their value education-

ally. It supplies a definite and powerful motive, and calls forth the student's best efforts; the whole educational problem becomes real, the work is permeated with a rich human interest, and this is what makes nurses look back on their period of training as having afforded them about the most wonderful and illuminating experiences of their entire lives—this it is which gives them their unique strength. Under proper safeguards and adjustments there does not seem to be any reason why this principle should not be extended into other branches of education, vocational and professional. Certainly our great schools of nursing afford to many of us not only an inspiring, but an ever suggestive, sight. The value of such great opportunities to student-nurses is, of course, dependent in a large measure on the mental grasp and mental training which they bring. What goes on in hospital wards is unintelligible in many of its most important aspects to those who have not first worked their way through the chemical and biological laboratories. "I imagine," says Dr. George Dock in discussing the essentials of professional education, "that to the uninstructed mind the taking and charting of temperatures is almost as monotonous as sewing buttonholes at so much a hundred. To the initiated it should be each time as interesting as the unfolding of a rose." How to draw into training schools for nurses more students who are capable of becoming thus "initiated," who can bring some such attitude toward their work, is the great problem which now directly and rather imperatively confronts these schools; for if they are to meet in any adequate way the present insistent demand for soundly educated and highly qualified nurses in the various fields which have been described, then it is clear that they must be able to attract a very much larger body of students answering to this description than they have hitherto been able to do.

Thus at every step forward in the development of any of the branches of professional nursing we are thrown back on the training school for nurses, and progress is conditioned by its standards, methods, and ideals. It is literally true that certain kinds of work requiring nurses, particularly in the public health field, are sometimes at a standstill because it is impossible to find enough properly educated and specially trained nurses to grapple with the problems which are presented. On the other hand, there is some evidence to show that the supply of nurses, especially for private service, is in some places somewhat in excess of the demand. This appears to be true at least of certain large centers in which private nurses appear no longer to find the steady occupation which was formerly assured them. It would seem as though training schools are not altogether accurately measuring their problem. Notwithstanding the improvements of recent years, there is much to be done to enable them to rise to the full height of their educational opportunity. They may well look with a considerable degree of satisfaction on their past achievements. The reforms they have wrought in hospitals are a matter of history; they have so transformed hospitals, in fact, that from places dreaded by the sick poor they have become the resorts of the sick rich. Training schools have sent forth an army of capable, skilled, and devoted women who are ministering to the sick in the homes of rich and poor alike, and there are about 100,000 graduate nurses steadily so occupied. But training schools for nurses are now called on to send forth nurses in impressive numbers to new and important fields of work, for which the training offered in any hospital can only partially prepare. The great services which training schools have so far rendered to society have been carried on without any of that kind of financial help which

is so freely given for the support and development of almost every other kind of educational work. Is it not time for the public, which has so strangely overlooked this branch of women's education, to begin to study its responsibilities toward it? Training schools for nurses are clearly fulfilling a very important place in our national life, and ministering well to many of its urgent needs in both home and community. They must be helped to higher levels of usefulness. Hospitals, struggling with their own intense and engrossing activities and with tremendous administrative and financial problems, must not be left to carry forward unaided educational work of such obviously vital interest to the entire community. Hospital resources and facilities are not anywhere ample enough to enable them to maintain adequately the training schools which are a part of their system. The future of such schools depends on their being placed on a sounder economic basis.

#### Standardization of Training Schools for Nurses

The State Board of Registration for Nurses of Pennsylvania has decided to appoint an educational director, whose duty it shall be to inspect the training schools throughout the state with reference to the curriculum, housing conditions, and efficiency of the school in general. The creation of this position marks the beginning of a new era in the administration of the state registration act, and, if a properly trained person is selected for this responsible position, Pennsylvania training schools will have placed themselves in the foremost rank in the country.

It is generally well known that, while certain hospitals publish a most elaborate schedule of didactic and practical classes for their student nurses, many of them do not adhere to the schedule, and permit the practical work to interfere with classes whenever it suits the convenience of the institution. Heretofore little, if any, attention has been given in many schools to the proper housing conditions for student nurses, any accommodations being considered adequate, and, as a direct result of this lack of foresight, many young women of refined tastes have been lost to the nursing profession. The time has come when hospitals that desire the services of student nurses will have to assume a heavy obligation to the student. They are conducting an educational institution for the training of high-grade women, and while, to impart this training, practical ward work is essential, the theoretical work is of equal importance and a necessary preliminary to the performance of efficient nursing. The education of nurses should not be dependent on the whims or personal convenience of visiting physicians or other attaches of a hospital. Every school worthy of recognition by the state board should be required to employ a staff, however small, of paid teachers, whose services are quite as necessary in supervising the practical bedside work as they are in lecturing.

The Van Leuven Browne Hospital School for Crippled Children, Detroit, Mich., is conducting a campaign by which it hopes to raise \$200,000 for new buildings. The trustees of the institution plan to purchase a forty-acre tract of land in one of the suburbs of Detroit and erect on it a group of twelve buildings. Eight of the structures will be cottages for the housing of the children. There will be two school buildings, one a regular graded school and the other an industrial school, where the children will be taught self-supporting trades. The colony will have its own hospital, also a building for administrative purposes. The present hospital school was established eight years ago by Miss Blanche Van Leuven Browne, herself a cripple. It has enjoyed steady growth, and the present quarters are inadequate for the number of children applying for admission.





Conducted by ALBERT WARREN FERRIS, A.M., M.D.,  
 Superintending Director for the Commissioners of the State Reservation,  
 Saratoga Springs, New York.

Please address items of news and inquiries regarding The Modern Sanatorium to the editor of this department, Saratoga Springs, New York.

### First Impressions

It was Crombie who said: "The most important parts of a sentence are the beginning and the end; by the former our attention is excited, on the latter it dwells." The idea may be applied to a sanatorium very closely, for the impressions on arrival and at departure are of prime importance. But, no matter how satisfied with the results a patient may be on departing, the first impression on approaching the establishment may be encouraging or absolutely disheartening. If disheartening, an unfortunate psychic condition starts, which must be met before much can be done for him.

The average patient approaches in an unhappy frame of mind. Disappointed, discouraged, perhaps dejected, because of his illness; weary, not hopeful, perhaps irritable; he is very sensitive to early influences. Anything repellant, annoying or gloomy apprehended in the first glance on approaching the buildings forms a deep impression, which is frequently reproduced and is hard to replace or obliterate. *Pari passu*, artistic, harmonious, cheerful accessories at once attract, disarm, and captivate. Beauty of form or of color makes a strong appeal, and here the landscape gardener and the architect lend their valuable assistance. Many people have such ill-developed powers of observation that they do not easily notice pleasurable or distasteful details, but nevertheless they are affected by them. And when writing home, as they look about them for topics on which to construct the scanty paragraphs of their early letters, they analyze for the first time their surroundings, and scrutinize the different features of interest in environment and accessories.

To forestall the feeling that prompts to adverse remark or criticism, and to provide satisfying visible conditions, one must secure the results of thrift, of neatness, and of artistic treatment in the immediate surroundings, not only at the threshold, but also at the gates.

How should the boundaries be marked? Better than even an ornamental wrought iron fence, or one of flat palings of tasteful scroll-saw pattern, is a hedge of spruce or of privet, as the climate dictates. The hedge may be behind a low stone wall, or it may be reinforced by an invisible low fence within. Either hedge or fence must be kept in absolute repair. Once within the gates, the vehicle must bowl the patient up to the door over a well-drained sand, gravel, macadam, or asphalt roadway, curved and rambling if the grounds are extensive enough to make this treatment possible, passing beds of bloom, dwarf shrubs, tall and graceful trees, groups of flowering bushes, and perhaps a great boulder or two, or an outcrop of natural rock.

Winter offers us not many chances beyond evergreens, although the beech is loath to part with its dry, bright brown, dead leaves, and the white oak tenaciously retains last season's rustling dead foliage until the new swelling leafbuds of spring eject it summarily. Few of us love the thickets of bare tree branches sturdily springing from the larger limbs. Few of us can name the trees native to our own locality from an examination of their winter outline and the color and texture of their bark; to those of us who can, our delight in the woods is less, not lost, during the period that Boreas and Hiems call their own.

From early spring to late autumn, opportunity for planting presents itself repeatedly. Foliage beds, blooming plants, and flowering shrubs are available to provide a continuous show of color. Slim and graceful trees, stocky masses of well-pruned shrubs, odd-shaped Japanese dwarfs, placed about the walks and drives, with due mindfulness of "the deformity of uniformity," may well combine to please the eye and occupy the mind, as one passes through the grounds, from gateway to entrance. Some new planting is necessary from time to time; in fact, the planting for the earliest spring blooming must be done in the November previous. The bulb bed must then be prepared, if we would have the snowdrop and the crocus to delight our eyes, before the last of the snow has melted. Yet the task is not so great; for most of the plants and trees that provide a succession of bloom are permanent when once placed, and require only a little care and fertilizer from time to time. Following the crocus come in order the black hellebore (*Helleborus niger*); the Judas tree (*Cercis*), with its sterile deep-pink flowers, blowing before its leaves appear; the brilliant yellow forsythia, lavish bloomer; the wax-white shad bush (*Amelanchie Canadensis*); the deep-red *Pyrus Japonica*, or flowering quince, whose sturdy, healthy green leaves are a delight; and next the graceful spirea, white or pink, and you can take your pick of thirty varieties, including the sort called bridal wreath, that provides masses of clustered white bloom. Following closely come the deutzia, the almond, the flowering cherry, weigelia; Japanese barberry; India currant (*Symplocarpus racemosus*); desmodium, pink and turning to purple; Philadelphia (commonly called "syringa"); and lilac (the botanists' syringa). Hardy roses, of course, begin to bloom early in June. Perhaps the last effective blossom of the hardy perennials is the graceful climbing clematis. To name the flowering annuals would be to quote a catalogue. But we must bear in mind the native white birch, considering trees, so artistic in groups or even in little aggregations of three or four specimens; the South Carolina poplar, sturdy, clear green foliated, so thirsty as to thrust its rootlets even into the crevices between the lengths of water or drain pipes, and often used as a quick grower and a graceful figure, to be sacrificed when more desirable permanent trees have more leisurely matured; and the Lombardy poplars, stately sentinels so effective as guardians of the gateway or to mark the corners of the estate. We have omitted the double-flowering crab apple, the hawthorn, the *Catalpa speciosa*, the pink acacia, the althea, the laburnum (*Cytisus laburnum*), sometimes called "golden chain." We have also slighted the mulberry, and the earliest of all flowering trees, in some localities, the horse-chestnut, with delicate yet stiff flowers resembling Italian glass work. A favorite tree is the *Catalpa bungei*, which, though flowerless, is often pollarded and thus encouraged to spread its short, stocky branches symmetrically, and provide grateful shade. The fruit trees begin their succession of bloom in April, and can anything surpass the dainty blossoms of the cherry

(the joy of the Japanese); of the pear, often transforming the tree into a massive white bouquet; and the exquisite apple, as sure as "the merry month of May" itself?

Skillful combinations of an intelligent selection of trees, vines, and shrubs will afford an overlapping succession of flowers and "a joy forever." But if "forever" means anything, no one must be allowed to pick branches from shrub or tree. Twisting off the twigs limits the bloom of following years and deforms the plant. How many thoughtless enthusiasts have crippled forever the trees that presented masses of color, simply to enjoy a bright maple branch or two for a few days, perched over the mantel or mirror! Possession is not necessary for enjoyment. If we would be advocates of the greatest good to the greatest number, let us be mindful of the words of Emerson:

"Hast thou named all the birds  
without a gun,  
Loved the wild rose and left  
it on its stalk?"

The bank of the woodland stream will provide us our pussy-willows with the first appearance of nature's green, and the distant orchard or meadow will provide material we can gather without committing vandalism.

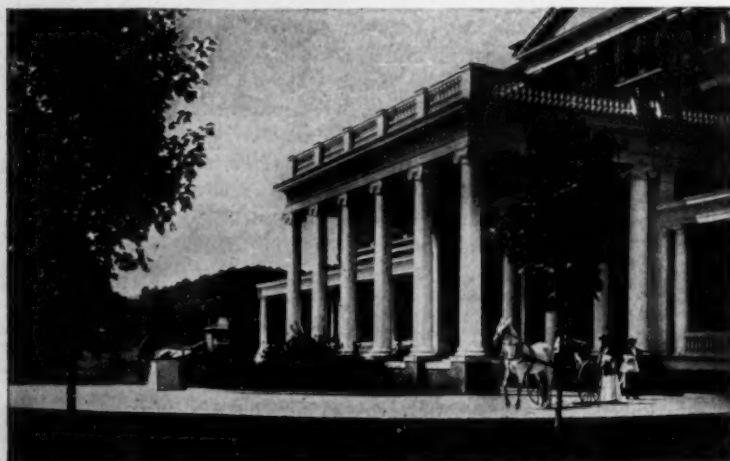
Often the preservation of a wild feature will afford a most picturesque object. Such is the old grapevine near the entrance from the north into the grounds of The Glen Springs, at Watkins, N. Y. This vine, luxuriantly spreading for decades, climbing, surrounding, and surmounting a cedar tree, finally arches completely over the side-



Battle Creek Sanitarium, Battle Creek, Mich.



The Glen Springs, Watkins, N. Y.



The Homestead, Hot Springs, West Virginia.

walk, like an old-time fortified gateway into an ancient city, and forms an inviting shelter for the liquid-noted evening thrush and numberless perches for the lithe catbird, whence he may emit his energetic miscellany of vocal gymnastics.

The architect contributes much to the special details and the general results. The impressions his work makes on the newcomer are more appreciated by the great majority, and form more lasting food for thought in the average mind than do the details of lawn or arboretum. The architect should furnish such effects, suitable to the objects and character of the buildings, as will more than meet reasonable expectations, and he who plans and builds must impart some inspiration to the architect.

Shall you ever forget the exterior of Bill Nye's cabin, in North "Elby," near the margin of Mud Pond, in the Adirondacks of New York state? A little, one-story log and clapboard structure, with four rooms and four windows; without, a hooded shelf on which stood a couple of tin pans, a frying pan, and a couple of inverted kettles; with an ax, a pack basket, a pair of oars, and a paddle, as well as a fishing rod close by; within, a kitchen, with wood stove, a cupboard containing a little canned beef, bacon, flour, coffee, maple sugar, baking powder, and salt. What more would you? Here were fuel and materials for a banquet of beef, flapjacks, and coffee. Yet there was more to the prospect. There were bed rooms with real beds, luxurious, if simple, to the eyes of us who had slept in our clothes on balsam boughs for



many nights. Bill was away, you will recall, but his hospitality did not fail us. We would have voted his viands fit for a gourmet, and the architecture of his dwelling equal to that of a chateau, had a ballot been taken. But that was in the August days of '80, when our breath was never short, and our muscles never weary; when the food and the architecture were but the prelude to a scramble up Bear Mountain, to catch the sunset glow on higher peaks; a glorious view from the top of Mt. MacIntyre after swinging over five miles of easy climbing next day; and the tramp over to the grave of old John Brown of Ossawatimie, and on to Lake Placid. The humble means to a glorious achievement are scarcely noticeable. The lower rounds of the ladder are unseen and forgotten if our vision reaches the light beyond the top. But if we see no light, if our strength is only sufficient for the lowest rounds, and we gravely question if we can climb at all, we need a white enameled round or two, preferably with tasteful gold patterns and an inviting seat, to help us forget that our limitations may be of considerable duration.

And so, as we approach the sanatorium, where we shall dwell for a season while waging a fight against the agencies of disease, if our first definite glimpse is of a pleasing architectural feature, we are reassured and take our first steps sympathetically. The end of the main building of Battle Creek Sanitarium we find inviting, with the balcony hung high under the edges of the capitals of the Greek columns. Still more impressive is the portecochère of The Homestead, at Hot Springs, West Virginia, with its dignified row of Ionic columns, at once imposing and beautiful.

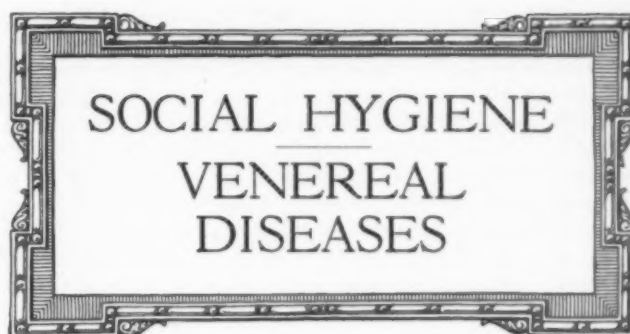
Even a mullioned kitchen chimney may testify to refinement, though emitting carbon monoxid. Let us build reposefully and with regard to use, but never inartistically. A strictly utilitarian theory, even of morals, is untenable.

ALBERT WARREN FERRIS.

#### Philadelphia Hospital Association Organized

A long-felt want was met when, on the invitation of Mr. Daniel Test, superintendent of the Pennsylvania Hospital, a meeting of all the hospital superintendents of Philadelphia and vicinity was called to meet at the Pennsylvania Hospital for the purpose of discussing the new workmen's compensation act and other subjects of mutual interest. The meeting was well attended, and brought forth such a fund of subjects vitally interesting to all present that a permanent organization was formed, Mr. Test being elected president and Dr. W. H. Walsh, secretary. At a subsequent meeting the necessary preliminaries for the proper organization of a permanent body were arranged, a schedule of prices to be charged compensation cases was adopted and recommended to all the hospitals in the city, and various committees were formed to consider and report on certain questions before the association. The new association pledges its support to the American Hospital Association, and will cooperate with the local committees on arrangements for the next convention to be held in Philadelphia during the latter part of September.

Governor Whitman, of New York, recently announced his intention of asking the Legislature for an appropriation to erect on the grounds of the state hospital at Middletown a hospital where aged and feeble patients can be sent. Most of such patients, the governor said, were suffering from senile dementia, and to care for them in a separate institutions would greatly decrease the cost to the state.



Conducted by WILLIAM F. SNOW, M. D.,  
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#### Progress, 1900-1915

The phrase "social hygiene" has had an interesting and varied history, and will, I venture to predict, develop other and larger meanings before it finds its permanent usage in the public's vocabulary. Social hygiene owes its present usage largely to our newspaper editors who felt the necessity for some descriptive term covering the diverse activities directed toward the reduction of venereal diseases and the repression of prostitution. Apparently the phrase originated in Chicago through its adoption in 1907 by the Chicago Society for Social Hygiene, although this organization was at the time devoting its energies primarily to sex education.

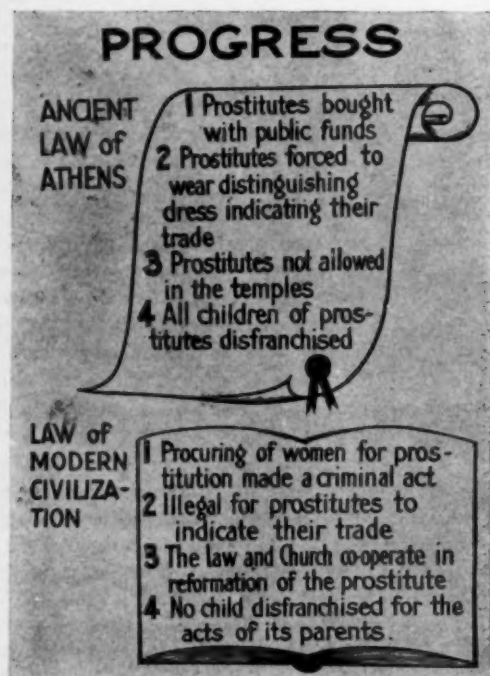
During the period 1905-1910 a number of state and local societies, special committees of women's clubs, church and medical associations, and other organizations were developing the pioneer work of focusing public attention on the need for organized effort in the social hygiene field. One group of these societies was mainly concerned with the medical and sex education aspects of the problem. In 1910 a meeting held in St. Louis for the purpose of organizing a national society endeavored to select a name from such titles of local societies as "Sanitary and Moral Prophylaxis," "The Study and Prevention of Syphilis and Gonorrhoea," "Social and Moral Prophylaxis," "Social and Moral Hygiene." The name agreed on for the time being was the American Federation for Sex Hygiene. A second group of societies and committees devoted their attention during this period to the problems of prostitution and other forms of sexual vice. These organizations likewise utilized many titles and effected many combinations and affiliations, which finally centered in the American Purity Alliance, whose activities were broadened in 1912 and the name changed to the American Vigilance Association. There has always existed a third group interested primarily in measures for the protection of the family and the development of moral character. The National League for the Protection of the Family, in its history of development during the past twenty-five years, illustrates the efforts to establish a special society devoted to this field of endeavor. Through the consolidation of the American Federation for Sex Hygiene and the American Vigilance Association the present American Social Hygiene Association came into existence in 1914.

The progress of the social hygiene movement began in the closing years of the nineteenth century, but, as this is only another way of saying fifteen years, the story does not take long to summarize. Prior to 1900 scientific and sociologic data were being recorded. With increasing frequency papers or addresses appeared on the programs of

various organizations calling attention to medical, economic, and moral phases of the problem. The Brussels conferences of 1902 and 1904 greatly influenced the final decisions to inaugurate educational propaganda in many countries. In part, we owe Dr. Prince A. Morrow's invaluable pioneer work to these conferences, which he attended as delegate from the United States. From 1900 to 1910 the available data were being formulated for the educational campaigns already mentioned as having begun in local experiments and discussions by small groups of interested citizens. During this period new facts of the highest importance were discovered. In the medical field there were added new observations of gonorrhea and its ravages, the discovery of the organism of syphilis in

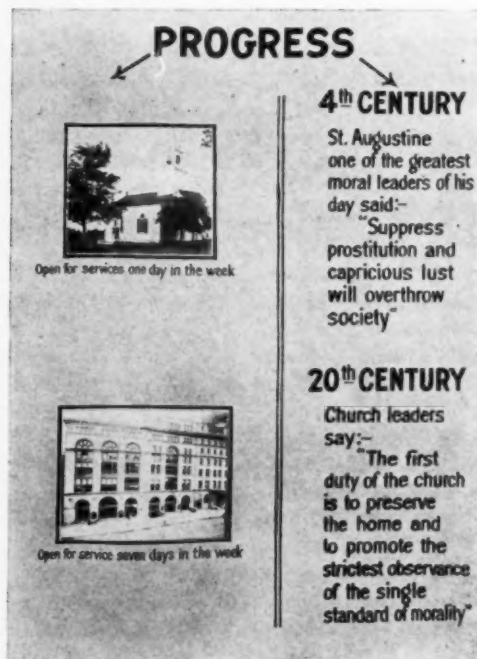
phrase covering activities of which the campaigns against venereal diseases and prostitution are only a part, but up to the present time these activities have necessarily been brought most prominently before the public. Recently the idea is gaining ground that social hygiene is essentially a constructive movement for the promotion of all those conditions of living, environment, and personal conduct which will best protect the family as an institution and secure a rational sex life for the individuals of each generation. This changing viewpoint is well illustrated by the forceful statement of Dr. Edward L. Keyes, Jr., descriptive of the aims and methods of social hygiene societies today:

"The elimination of disease and prostitution cannot be attained solely by the enforced registration of venereal diseases, the raiding of disorderly houses, and the enactment of laws against procuration and solicitation. Such police and legislative activity achieves temporary or local ends. But reform of this sort rapidly burns itself out and the police remain singularly human in their weaknesses. The real strength of the social hygiene movement of today lies in the cooperative activities of the great religious, social, and educational organizations. They are striking the evil at its source; not by driving the prostitute into the street and then out of it again, but by preventing our young girls from becoming prostitutes and our young men from preying on them. This they hope to achieve by informing the mind so as to banish prurient curiosity, by diverting the imagination to emotions joyous and clean, by exercising the body in playgrounds and dance halls that are safe, and, above all, by inspiring the soul with



1905, the development of the Wassermann reaction in 1907, the preparation of salvarsan for the treatment of syphilis in 1910, and in 1911 the successful inoculation of syphilis and cultivation of its organism, crowning the faithful and brilliant research of many investigators over almost a decade. These advances made possible by 1912 a practical campaign against venereal diseases as soon as public opinion could be developed in support of it. In the law and law-enforcement field the records show many persistent and self-sacrificing efforts to utilize existing statutes and to devise new legislative and administrative measures. Typical of these have been the federal "white slave" enactments, the state injunction and abatement laws, the "tin plate" ordinance, and municipal regulations directed toward the elimination of commercialized prostitution. Good environment and observance of moral standards have become recognized as vitally important forces in any campaign for ultimate eradication of venereal diseases and prostitution as great social ills. Something has been done by social hygiene societies toward applying these forces, and a great deal has been done in this direction by other organizations. One has only to think back five years to realize how much has been accomplished in the creation of public opinion in support of medical, legal, social, and moral lines of attack on the social hygiene problem.

Social hygiene has become recognized as an inclusive



the highest religious and family and civic ideals. To turn lust into love, 'into the enthralling love of mate for equal mate, into civic love for freedom, home, and state, into the eternal love of God and of all things create'—such is our aspiration."

Eventually it is possible that social hygiene may find its place as an inclusive designation for a group of organized and affiliated movements which deal with community problems in which social and moral factors, as distinct from sanitary factors, are of primary importance. In this sense it is logically a companion term to public hygiene, or public health, which is its popular equivalent.

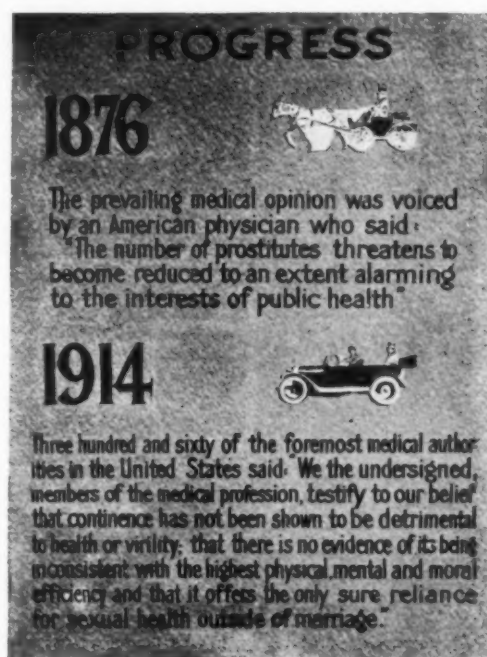


Returning to the consideration of the major activities of social hygiene as it is at present defined, an encouraging prospect is presented. As the period from 1905 to 1910 was one of industrious tabulation of scientific and social data and pioneer experiments in organization, and the period from 1910 to 1915 has been one of persistent education and formation of public opinion, so the period from 1915 to 1920 promises to be one of active administrative effort to achieve results which have been demonstrated to be attainable. In the medical field a fairly definite program has been launched.

In attacking any disease from which he is attempting to protect the public, the health officer first secures through investigations, physicians' reports, and personal

in personal prophylaxis—i. e., medical prophylactic measures—is still on the firing line and illustrates the great difficulties which have attended all progress in the past five years. That society is not opposed to the popularization of methods of preventing the spread of diseases by means of medical applications, or even to the furnishing at public expense and compelling the use of medical prophylactics, is amply demonstrated by numerous instances, as witness the requirement of vaccination against smallpox, the distribution at public expense of diphtheria antitoxin, and, in earlier days before the nature of communicable diseases was understood, the wearing of a piece of asafetida about one's neck, or the placing of saucers of carbolic acid about the house. The opposition to medical prophylactic measures in venereal diseases is based primarily upon the public's determination to safeguard something it holds far more precious than health—namely, the morals of the community. The approval accorded the use of silver nitrate solutions in preventing gonococcus infections of new-born babies' eyes is still better evidence of this. Before medical prophylactics can be wisely utilized, their bearing on the moral problems must be worked out and well-considered plans adopted.

The attack on community conditions indirectly influencing the prevalence of venereal diseases or favoring their return to a community, could they be once eradicated, is viewed by the health official largely as an academic question. These diseases, like tuberculosis, are endemic and his executive responsibility leads him naturally to interest himself primarily in the existing cases and those individuals in immediate contact with them.



interviews all the information obtainable on existing cases, and arranges for their treatment and supervision under conditions which will preclude transmission of the disease to others. He then proceeds to carry out such additional measures as are calculated to protect the noninfected portion of the population from any cases he has not discovered. Looking toward the future, he finally endeavors to secure those community conditions and standards of personal hygiene and conduct which will prevent the recurrence of the disease after it has once been eradicated. Analyzing on this basis the evidences of progress in reducing the prevalence of venereal diseases, we find now in many parts of the United States diagnostic facilities, advisory stations, dispensary services, and, to a limited extent, hospital care, provided in an endeavor to benefit the infected and to teach them how to protect the public during the continuance of their disease. The extension of hospital social service to this class of cases is steadily being demonstrated to be wise and practicable, and progress is being made in getting venereal diseases reported.

The instruction of the public in measures for protection of noninfected individuals has also progressed. Obviously, continence outside of marriage for both men and women is the greatest factor in the prophylaxis of these diseases, and the acceptance of this standard has been steadily urged by the social hygiene societies, a few health officers, and those moral agencies which have been induced actively to participate in the campaign. The other factor



The evidence seems clearly to indicate that the public will soon assume the same attitude toward venereal infections that it does toward other dangerous communicable diseases. This attitude, as expressed in tuberculosis or typhoid fever, for example, is one of sympathy and assistance for the infected individual, while a frank and searching inquiry is made into the source of the infection and the conditions of the community which may have contributed to the opportunity for his infection. It is true of American communities today that public opinion demands the reporting of typhoid fever cases, with ample

explanations of high or low rates. Perhaps the time will come when the concealment of syphilis and gonorrhea cases will be followed by a suspicion that the opportunities for spread of these diseases are unusually large, and that the community thus failing to record frankly its morbidity rate for these diseases is not a safe place in which to establish a home. Every health officer knows the power of such an argument in securing funds and support for the battle against such diseases as typhoid fever, malaria, and even tuberculosis. Social hygiene societies are endeavoring to turn this power to account in the battle against the venereal diseases.

So much for progress in the medical field; in the law and law-enforcement field the endeavor to repress prostitution and to establish activities which may ultimately be expected to eliminate at least its commercialized aspects has made notable advances. The battle for the abandonment of segregation or other forms of regulation of prostitution as a public policy has been won. New Orleans and San Francisco are the only two large cities in the United States where publicly acknowledged red light districts are maintained. The agitation aroused in the Louisiana Legislature last winter over an abatement and injunction bill and the persistent fight for better conditions in California that has been maintained against the greatest conceivable opposition of the vice interests are indications that these remaining strongholds of the segregation policy will ultimately give way.

Certain important cities secretly tolerate centers of prostitution, and occasionally efforts are made to bring about a return to a policy of recognized segregation, but the results of the vice investigations in this country and the Flexner report on conditions in Europe have crystallized public opinion in favor of the abolition of commercialized prostitution. The creation of such effective organizations as the Committee of Fourteen in New York and the Committee of Fifteen in Chicago may be taken as evidence of determination to go steadily forward toward its ultimate eradication. The activity of other agencies, including the several departments and bureaus of the federal government empowered to deal with special phases of the problem, is further evidence of progress in this direction.

Looking toward the prevention of its return, once open prostitution has been driven out of a community or measurably reduced, various laws and administrative measures have been developed. In the main these provide: (1) ready means for an individual or small group of citizens to set in motion existing law-enforcement machinery, as illustrated by the various abatement and injunction laws; (2) public facilities for proper investigation of individual cases leading to official action in the best interests of both the public and individuals, as illustrated by the creation of morals commissions or morals courts; (3) provision of adequate institutions for the treatment, discipline, and segregation of delinquents, as illustrated by the increasing cooperation between officers and agents of the law, directors of psychiatric and medical clinics, probation and protective associations, and homes for the feeble-minded. The personal factor in moral prophylaxis, like that in medical prophylaxis, is in a state of uncertain development. Progress is being made by social hygiene societies and by other agencies in building up better environmental conditions, and slowly the public is coming to realize the important bearing of such factors as alcoholism, feeble-mindedness, lack of self-control, toleration of extramarital alliances, illegitimacy, desertion, and divorce on social hygiene problems. Efforts are also being made to corre-

late the existing laws and ordinances and to standardize procedure in the several states.

The study of all the notable advances in social hygiene show certain common principles of procedure. First, there have been comprehensive and thorough investigations of each phase of the problem. On the basis of evidence thus secured, plans for dealing with the situation have been worked out, the public has been informed of the facts, and one or more practical demonstrations of the proposed measures have been arranged. These steps have been followed by the launching of a careful campaign to develop public opinion in support of general application of the demonstrated measures. Attempted short-cuts in this procedure have usually proved disastrous or delayed permanent gains. The movement cannot afford to be unduly forced by impatient enthusiasts or retarded by the over-cautious. It must lead public opinion in its field, but the administrative measures advocated cannot hope for success in advance of a general belief in their efficacy and the public's determination to have them enforced. The old adage, "well begun is half done," has often proved true. Whether it is given to this generation to accomplish so much for the social hygiene movement, time will show. The future seems full of promise.

#### A Portable Hospital

Through the generosity of a New York woman the French Red Cross will soon be in possession of a portable hospital of such unique construction that it can be erected or dismantled almost instantly, and can be easily transported to the part of the field where it is needed. The donor of the hospital is Mrs. Oscar L. Richard, wife of the president of the State Bank in Grand street. When the idea of the gift of a knockdown hospital occurred to her as a suitable gift to the Red Cross, Mrs. Richard consulted the firm that has built a large number of portable houses for the United States government for use in the Panama Canal Zone and Alaska. The plans were drawn under her supervision. The cost of the building was \$5,000. The novel feature of its construction is the plan of having the sections of the floor from the packing crates in which it is transported, the sections of the roof making the covers. Handles on the sides of the crates make it easily carried by hand. The hospital is 45 x 18 feet and will accommodate 26 patients. Two men can erect it in ninety minutes. Not a nail or a screw is used, bolts being the only method of joining. The building will be comfortable in the most severe weather.

#### Reciprocity Registration in Pennsylvania

In connection with the attempts that are being made to improve the nursing situation in Pennsylvania, it is interesting to record a recent decision or opinion of the attorney general to the effect that the State Board of Registration for Nurses is empowered to register graduated nurses who are registered in other states without further examination, and may refuse to examine or register non-graduates, even though registered in other states.

The Baptist Memorial Hospital, Memphis, Tenn., is making preparations for the erection of the second of three buildings originally planned. The proposed new structure is designed to accommodate 125 patients. It is expected to cost about \$125,000. Mr. Perry C. Wilkes has recently been elected superintendent of this hospital.



# PREVENTION OF BLINDNESS MATERNITY

Conducted by CAROLYN CONANT VAN BLARCOM, R. N.  
Secretary National Committee for the Prevention of Blindness;  
Chairman Committee on Prevention of Blindness and  
Midwives National Organization for Public Health  
Nursing.

## Illumination and Eyestrain

BY ELLICE M. ALGER, M. D.,

Professor of Diseases of the Eye, New York Post-graduate Medical  
School.

The term "eyestrain" is applied to that group of symptoms which result from overwork, and may occur in perfectly normal, healthy eyes. Near effects are seen by focusing, a muscular effort which, when long continued, causes fatigue and necessitates a period of rest. When the eyes tire sooner than they should because of muscular weakness or because of astigmatism or age, defective vision or pain may result. If the light is overbright or if the retina is hypersensitive, the result is likewise disturbance of vision or pain. The results of eyestrain not only include pain in the eyes and functional defects of vision, but quite possibly may result in organic eye disease. They cause 80 percent of the chronic headaches, and often result in functional disturbances of other organs and in



Fig. 1. The right and wrong ways to read. Light is to see by—not to look at.

conditions of general nervous exhaustion and irritability. Most of the symptoms that result from eyestrain are capable of aggravation by improper lighting, and many are primarily caused in this way.

Light is the sensation excited in the retina by the impact of vibrations in the ether, the longer ones giving sensation of red, while the shorter ones cause in succession all the colors of the rainbow. The mixture of all these together produces the sensation of white. There are longer invisible waves which can be felt as heat, and shorter or ultra-violet ones which have a very active chemical effect. Many of the effects of sunlight, like sunburn and snow blindness, are due to this chemical activity.

### THE INFRA-RED AND ULTRA-VIOLET

The north light is taken as the standard of illumination, as it is the steadiest, the pleasantest, and the best diffused, causing the fewest shadows and affecting color values least. All artificial lights are intended to copy more or

less the good qualities of daylight, but, though we are perhaps getting nearer and nearer to it, there is no artificial light just like daylight. The light which combines the maximum of illumination with the minimum of irritation to the eye is composed of the yellowish rays from the middle of the spectrum, and for this reason the old-fashioned student lamp enjoyed a well-deserved popularity. But most artificial lights contain a much higher proportion of the violet or chemical rays, and some of them contain ultra-violet rays as well. Their chemical activity may be very great. Nearly everybody has experienced the discomfort and premature fatigue that comes from reading by unshaded incandescent lights. It is quite possible, too, that the cumulative chemical effects of light, whether nat-



Fig. 2. Lights hung close to operator's face. Such an arrangement is exceedingly harmful to the eyes.

ural or artificial, are more serious, among the conditions which have been plausibly attributed to it being senile cataract. It is well known that stokers and glassblowers, who have to face very brilliant incandescent light, have a tremendous predisposition to cataract, while in the ordinary cataract of old people the process generally begins in the lower part of each lens, which is the most exposed to sunlight from above.

### GLARE

Oculists have long realized the irritative effects of bright light in many degenerative changes in the retina and choroid, and the use of amber or tinted glasses intended to soften the light and exclude the actinic rays has become almost a popular fad. The human eye even in daylight has to adapt itself to many variations of brightness. When the light is dim, the pupil dilates, and, when it is bright, it contracts sharply, any sudden extreme muscular contraction of the iris being painful. Constant exposure to bright light causes in many people premature fatigue. Still more tiresome and painful is the rapid dilation and contraction of the pupil that results from flickering light. Long-continued exposure to bright light causes retinal exhaustion, the retina being capable of reacting only to abnormal stimulation. Everyone has experienced the comparative blindness caused by going from bright sunlight into a dimly lighted room. Workmen often insist on having their light too bright because they have become so accustomed to it that they cannot see without it. Even if they suffer no harm from the glare, they cannot possibly work as long without fatigue. Sometimes the

retina, instead of being blunted, becomes so hyperesthetic as to be almost incapable of bearing any exposure to light at all. This condition is seen at its worst in hysterics, but it is also very common in certain trades, like those of the gilders and polishers, who have their attention fixed for long periods on bright surfaces.

#### DIFFUSION

Daylight has such a volume and is so diffused that objects get light from all sides and few shadows are caused. Proper diffusion is the secret of all successful artificial lighting, but in many industries almost no attention has been paid to this point. It is important not only from the standpoint of efficiency, but of safety, as the retinal anesthesia and deep shadows that result from poor artificial lighting are potent factors in causing industrial accidents. Less intensity and better diffusion are the needs. When intelligently used, the eye is one of the best of photometers, since it is by its adaptability to that eye that all artificial lights must be judged. One should begin with a low illumination and gradually increase it until a point is reached when further increase ceases to improve the details of the work in hand. Beyond this an additional light is both unnecessary and fatiguing.

Abnormal fatigue is admittedly one of the greatest predisposing causes to physical or mental breakdown. In

the gilders and polishers, who have bright lights reflected into the eyes from their work, and in schools, where the smooth, shining pages of the books answer the same purpose. I have seen it entirely forgotten in the placing of hospital beds. So far as possible, light should fall from above, behind, and to one side. It should be enough, but not too much, should throw no shadows on the work, and



Fig. 4. Well-lighted school room, showing use of indirect lighting and lighting by means of adjustable reflectors.

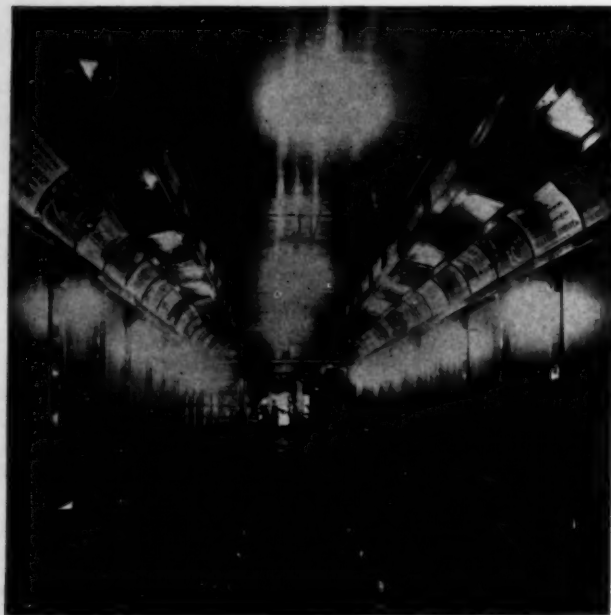


Fig. 3. Street car, showing glare from uncovered lights.

our modern life the eyes are used constantly for work of a kind for which they were never intended. The result even in normal eyes is a muscular and nervous fatigue, which is greatly increased by both over or underlighting. In the majority of individuals whose eyes are still further handicapped by astigmatism or other refractive errors the strain is greater. It has been plausibly argued that eye-strain, and perhaps the constant exposure to intense light of short wave-length, may be predisposing factors to the neurasthenia from which garment makers admittedly suffer.

#### ARRANGEMENT

The arrangement of lights, too, is a matter of as much importance as their brightness. Everyone knows the discomfort and blindness that comes from having a bright light shining directly into the eyes; and yet machines are often so placed that the operator has to face a window or a light. The same difficulty occurs in trades like those of

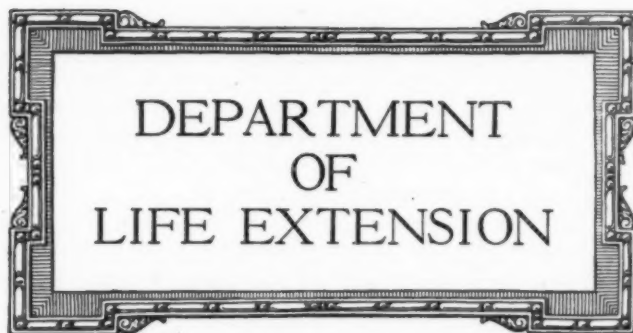
should not be reflected into the eyes of the workers. The arrangement of light for many workers in a factory or school is more difficult, and presents many technical details to be left in the hands of the illuminating engineer.

Bad lighting often costs more than good, and from the standpoint of efficiency it always does. Bad lighting undoubtedly causes unnecessary eyestrain and premature muscular fatigue; it compels close and unflagging attention to the details of work, which should be done almost automatically and without conscious effort. Each individual does less work than he should, there is a larger percentage of mistakes and material spoiled, and the number of accidents, large and small, is vastly increased. Even under ideal conditions the extreme subdivision of factory work, with its monotony, largely destroys the pleasure of work, but bad eyes, poor lighting, and long hours are important factors in the industrial discontent of the day.

Scientific shop management implies good lighting as one of its first requisites. The color and composition of the light that enters the eyes can be regulated by the interposition of screens or shades which shall absorb the rays not desired, or by having it reflected from suitable colored surfaces. Volume and intensity can be regulated by increasing or diminishing the number of units, and by diffusing it with frosted shades or by reflecting it from roughened ceilings. But, while the experts are agreed on the principles involved, they do not agree entirely on the details. The human eye can adapt itself to very wide variations in illumination, but there must be comparatively narrow limits within which the greatest efficiency may be reached. Different industries often require different types of illumination, which must all be subjected to the final test in the shop or school.

Illumination as a science is yet in its infancy. Even in great public buildings, libraries, and theaters it is treated rather as a decoration than as an essential, and, if such buildings are badly done, one can hardly expect as yet that any great attention will be paid to the proper lighting of the ordinary factory or house.





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#### Diseases of Modern Life

Old age and death are such universal phenomena that we accept them as necessary and inevitable. I do not predict an elixir of life or hold out the hope of earthly immortality, but simply deny the necessity of old age and death as we now witness them.

True, I have claimed that there is no necessary law of mortality, allotting a certain span of life to man, regardless of what may happen to his body. I claim that we know of no such law, and that man grows old and dies because he is injured, poisoned, or infected, and not because the mechanism of his body is wound up to run a certain limit of time.

I recognize that, in the nature of things, it is impossible for man to escape a certain degree of injury, of poison, and of infections, which must ultimately overcome his resistance. His inherited or acquired resistance and the degree of injury, poison, or infection to which he is subjected are the factors that determine his longevity, and not some physical law that predetermines the limit of his span of life.

As men grow old, we say that they show the marks of time. Now, time is a mere mathematical abstraction. Time can no more age or kill a man than can the rule of three. It is what happens in the course of time that counts; here is where personal hygiene or the scientific care of the body steps in and shakes a club in the face of that old bugaboo, Father Time, and tells him to begone with his ridiculous symbols, his scythe, and his hourglass. Men grow old and die not because an old man with a scythe and an hourglass is after them, but because their bodies are neglected, because they are continually attacked by billions of microscopic enemies that we are finding ways to meet and conquer. As a matter of theory, it is entirely possible to conceive of ideal conditions under which the human body could continue indefinitely in a condition of good health, defying old age. These ideal conditions are probably not attainable in practical life, but they involve no negation of natural laws and conditions, and they have been attained as applied to simple organisms. Carrel has taken cells from the chicken embryo and kept them alive and growing in the laboratory, showing none of the usual signs of age and decrepitude, simply by maintaining certain conditions of nourishment and periodically washing them of poison. These cells are, of course, protected from injury or infection. Now, conditions in the human body are such that the safeguarding of all of these billions of cells in this manner is practically unattainable, but a certain degree of protection from injury, from poison, and from infection is attainable, and already has been accomplished, with a resultant striking effect on the death rates.

This result is almost wholly due to the successful fight against infective or communicable disease.

Speaking generally, therefore, we may say that diseases of modern life include more particularly those of chronic, insidious infection, and of wear and tear, rather than those of acute epidemic infections. The days of plagues and epidemics are about over for civilized communities, the so-called epidemic of grippe and pneumonia being merely an increased prevalence of maladies which we always have with us, but which take on a more violent form or an increased incidence probably because of special conditions of exposure during trying weather conditions. A glance at the mortality movement of the past thirty years shows that such, indeed, is the trend of modern mortality that the attacks of bacteria, which, in current war phraseology, might be described as "drives," are being more and more successfully met by public hygiene and public health activities, while the "nibbling," as the French general term is, is increased in force and effect, and is forcing back our lines of defense. This "nibbling" arises from what is termed "focæ infection" bacteria located in various parts of foci in the body and from there keep sniping at our arteries, or stomachs, or kidneys, and in the course of time take trench after trench of our defenses until we succumb to some acute, sudden onslaught, or gradually sink into the decrepitude of old age, which, as we now usually see it, is the final stage of chronic infection. As we study mortality figures, the "nibbling" process seems to have made unduly rapid progress in this country. We find an increase in the death rate from these chronic diseases which cannot be accounted for on any other reasonable hypothesis but that of a lowered resistance in the population. Death rates in the later periods of life are rising in keeping with the rise of mortality from the chronic diseases of middle life and old age.

These are facts that all who are interested in the care and training of our youth must seriously consider if they are to utilize their opportunities to the higher degree. The treatment of these well-advanced chronic diseases in the middle-aged and the elderly is a far less promising field than the guidance of the young in building up resistance to such maladies.

A glance at a few charts will give us a bird's-eye view of present mortality trend and fix more thoroughly in our minds the degree of present needs.

To meet the conditions revealed by these figures is not easy in the absence of more certain information regarding all the causes that are lowering resistance; nevertheless, our line of procedure seems in a general way very clear. First we must inculcate a sense of responsibility in parenthood, so that future generations may start with better human material out of which to fashion life. I will not go into this subject in detail, but insist on its vast importance. Next, we must proceed to apply the principles of personal hygiene or right living in an intelligent and systematic way. This means that, in addition to teaching the general principles of right living as they apply to the so-called healthy and sound, we must ascertain individual needs and characteristics, and apply modern knowledge precisely and definitely in correcting defects, and training the individual to make the most of his endowments, even in such a generally helpful work as physical training. Much harm may be done directly by trying to build up by strenuous means a body that is organically defective or chronically poisoned or infected. The harm may come not only from overstrain of organs or arteries, or the dissemination of infection from foci, such as the tonsils when they are septic, but from the sense of false security given by

athletic training; the feeling that rational health measures are being followed, while all the time the "nibbling" of the streptococci or the pneumococci is going on and the real effective measures for checking it are neglected.

The first and fundamental step, therefore, after the individual is on the earth is to arrange for his periodic examination, so that his body may be kept free from all foci of infection and his organic defects and weaknesses known, so that measures for his upbuilding may be properly directed and controlled. The best public health work is done in communities where vital statistics are kept, where there are spot maps of unsanitary conditions, where there is the most precise knowledge of the degree of the evils that are being attacked; so the best results in individual hygiene will be attained where a spot map is made of the individual's weaknesses and defects as well as of his strong points, and the condition of his body checked up from time to time in order to measure the effect of his living habits, of his work, rest, and play, and determine such means as may be taken to improve his life.

Physical training and health culture should not be a sort of Procrustean bed, where the subject is sawed off if his legs are too long or stretched out if they are too short. Even so apparently innocent a practice as water drinking or exercising for a free perspiration may be overdone in certain objects. In diet, how easy to err without some knowledge of the organic condition of the individual. So this periodic examination, then, is the first great step. What follows must depend on what is found. There are certain guiding principles, however, which must be borne in mind as we face the problem of checking these diseases of modern life.

I dislike the term "diseases." It implies some entity, some mysterious process to which the sufferer is condemned, instead of a combination of tissue changes, the result of manifold processes, mostly of an infective nature. Certain organisms attack certain tissues, and we call that a disease, but it is really no more a disease than is a bruise or a fracture. It is a multiplying of injuries to cells. Protect the cells, and there is no disease. Lacking certain elements in our diet, and the so-called disease beri beri, or scurvy, or pellagra develops. This is no mysterious entity, no progressive malady to which the sufferer is condemned by some higher power.

When ill, search for the microbe or poison. A man who dies from a dose of cyanide of potassium is not said to have a disease; neither should we so regard these infective processes that underlie so many chronic changes. These are tissue changes due to injury. Defend the tissue and there is no disease; neither is there old age, as Carrel has shown.

Temperance all along the line—working, playing, and even resting. It is possible to rust out as well as wear out. But what is temperance for one is "wasteful and ridiculous excess" for another; hence the fundamental principle of periodic examination.

There are two great groups of causative factors in the development of these chronic maladies.

1. Improper living habits; overeating, especially of meat and of rich, highly seasoned foods; too little exercise; too much exercise; prolonged, exhausting manual labor or athletic excess; abuse of alcohol and tobacco; the disease of vice.

Hard work in which one has an interest, not carried to the point of undue strain or interference with the normal sleep, exercise, diet, etc., is not in itself harmful. Overstimulation of any kind, excessive emotional excitement, and prolonged mental strain may, however, cause the

human mechanism to break down instead of running down.

"Lopsided" brain work and bad mental hygiene—i. e., too much or too little work, too much or too little play—are important factors in bringing on premature disease. The brain worker needs some physical play and mental work.

2. Chronic infections. Many of the chronic degenerative diseases of adult life are due to persistent insidious infection by various forms of bacteria. These bacteria find lodgment in diseased gums and tooth sockets, nasal cavities, tonsils, and other localities favorable for the development of germ life. From these localities they move out into the circulation and into the tissues, like submarines from a base of supply, attack various organs and often cause troubles in the heart, kidneys, blood vessels, stomach, gallbladder, appendix, and joints. Sluggish, dammed-up bowels are also often a source of chronic infection and poisoning that give rise to circulatory and kidney affections.

There should be periodic examinations to determine the physical condition and any possible source of infection, with removal of the infection if any exists; and then regulation of living habits, so that the individual may, so far as possible, be adjusted to his life work or his life work adjusted to his physical capacities.

## SURGICAL OPERATIONS IN MOTION PICTURES

### Medical Schools and Teaching Hospitals May Adopt the "Movie" Method With Students and Staff Men

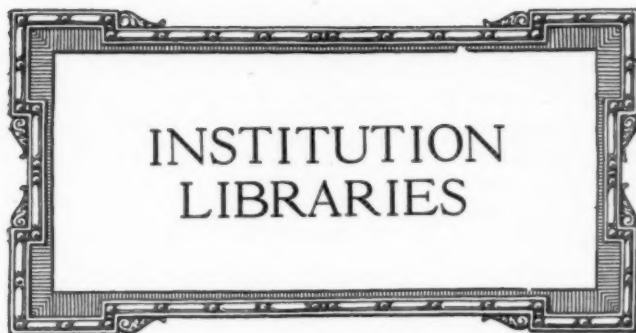
Members of the New York County Medical Society recently witnessed a series of distinctive motion pictures showing the details of intricate surgical operations. The pictures were taken from a distance of eight feet and are said to show each movement of the surgeon more clearly than can be seen from a clinic amphitheater. The films were designed to be used only for educational purposes among doctors and students of surgery, and consequently the views are confined strictly to the scientific side of the operations.

Accompanying the pictures were explanations and diagrams showing just what was being done. Dr. J. Bentley Squier, who conducted the demonstration, tracing each operation from the first incision to the final stitching, explained that the idea in having the films made was that such films would afford an opportunity for students of surgery to follow quickly and accurately the new developments in their field; students would be enabled to see, for instance, exactly how a new operation was performed by the man who had originated it perhaps in a distant city.

The films are not for public exhibition, but probably will be used in medical colleges and libraries, where it may soon be possible on short notice for any surgeon or student to call for just the film he needs to teach him the details of an operation he himself must perform without delay.

A plan to make every hospital in Philadelphia a health center, with a social service branch devoted to the prevention of disease, was discussed at a recent meeting of the Infant Mortality Committee of the County Medical Society with representatives of the various hospitals of the city. The plan as presented by Dr. Charles V. Dorwarth, chairman of the committee, was approved by all present, and will be laid before the boards of trustees of the hospitals. The City Bureau of Health is said to be cooperating in the movement.





Conducted by E. KATHLEEN JONES,  
 Librarian McLean Hospital, Waverly, Mass.; member Institutional  
 Libraries Committee, American Library Association.

Please address items of news and inquiries regarding Institution Li-  
 braries to the editor of this department, McLean Hospital, Waverly,  
 Mass.

### Institution Library Administration in Nebraska

It was in 1907 that the secretary of the Nebraska Library Commission attended a meeting of the American Library Association and heard Miss Miriam Carey, then with the Iowa State Board of Control, read a paper on libraries in state institutions. She came back to Nebraska filled with enthusiasm over the possibilities of the use of the book in prisons, hospitals, schools for defectives, and homes for dependents.

The local situation, however, was somewhat discouraging. At that time there was no central board of control of state institutions, and the positions in the various institutions were at the disposal of the governor and were used chiefly as rewards for political activity. Being of no decided political complexion, state institutions were likely to be Republican one year and Democratic the next, and every change of administration installed a new set of institution employees. Even a Democratic cook was considered quite incompetent to prepare Republican meals. Moreover, the Legislature always pared the maintenance appropriations to the minimum, permitting few expenditures except for the obvious necessities, among which they did not class books. With the frequent changes in administration and the limited appropriations for maintenance, it is not surprising that libraries existed in only one or two of the institutions, and that these few were far below public library standards.

With no centralized administration of the institutions, the Iowa plan of looking after the institution libraries was obviously not for Nebraska. A supervising librarian would be of little use with practically no libraries to supervise and little prospect of getting any. It was a problem of getting both books and expert supervision, and placing the work on a permanent basis, out of any danger of political interference, where it would grow steadily from year to year in strength and usefulness.

We of the library commission felt that expenditures for books should not be left to chance, to be squeezed out of the maintenance funds after everything else had been provided for; that a regular annual expenditure, however small, if carefully planned, would in time result in good working collections in each institution, and that these collections could reach their full measure of usefulness only when directed by a specially trained librarian.

It was not until 1910 that a plan was definitely formulated and the decision reached to ask for an appropriation to be made to the library commission, to be expended by it for the institutions, and for an additional member of the commission staff to take charge of the institution libraries.

Previous to the convening of the Legislature a little campaign was made to give publicity to the idea, and a number of persons became interested; but when the request was made to the Finance and Ways and Means Committee to insert the item in the general appropriations bill, it gave it scant consideration and promptly refused. The secretary of the commission was resigned and ready to accept their action as final, but not so one member of the Legislature who had become greatly interested in the measure. When the committee refused to insert the item, he prepared a petition from members of the House to the committee asking that the item be inserted and reported out to the House. He then made a personal canvass for signatures, explaining the work contemplated and asking each member's support when the bill was reported out. He secured enough signatures to the petition to pass the appropriation with a safe majority, and after that it had clear sailing. This man, a farmer well known in Nebraska for his activities in agricultural progress, should also be remembered for his service to the institution libraries.

The appropriation was available in April, 1911, and in May a librarian was appointed and work begun. The institutions to be served were three hospitals for the insane, two soldiers' homes, an industrial home for women, an industrial school for girls and one for boys, a hospital for crippled children, a school for the deaf and one for the feeble-minded, a hospital for the tuberculous, and the penitentiary. The total population of all institutions, outside of the employees and officers, was about 4,000.

Before planning the organization of the work, the librarian made a visit to all the institutions to discover the special needs of each group and to explain to the superintendents how the appropriation was to be used. It was then that we realized for the first time the advantage of going into the institution "bearing gifts." When the superintendents understood that books and magazines were to be furnished the institution at no expense to their maintenance funds, and, moreover, that the amount to be spent for each institution rested entirely with the library commission, they were cordial enough. We all know the allurements of getting something for nothing. We know how many public libraries exist today because it was easy to get a building for nothing from Mr. Carnegie. It worked just so in the institutions, and every superintendent was ready at once to furnish shelving, space, and service for caring for the books to be bought for them by the library commission.

When the librarian returned from her first round of visits, we worked out the details of our organization, and after four and a half years of trial these methods still seem satisfactory. At the beginning of the year an apportionment of the funds is made—one item for traveling expenses in visiting the institutions, one for library supplies, which are bought in quantity and used wherever needed, and a separate book fund for each institution. These are simply estimates for our own guidance, and can be changed at any time should a special need arise. From our appropriation we pay for books, periodicals, library supplies, and binding, and each institution supplies the furniture, such as shelving, reading tables, periodical racks, and the librarian's desk, and the services of someone, employee or inmate, to care for the library.

Books are ordered once or twice a year, and are received, accessioned, catalogued, and prepared for circulation at the commission office, and are then sent to the institution to which they belong. We feel that it is economy of time for the supervising librarian to do as much of the

technical work as she can in the central office. She can fit the ordering, cataloguing, making of bulletins and the like, one into the other, without loss of time, and it seems to us that we are able to keep more closely and continuously in touch with all the institutions through correspondence and frequent visits than through more extended and infrequent visits on which one's whole time is absorbed by the one institution.

When new books are sent, the librarian makes a visit to the institution, goes over the new books with the local librarian, explaining any special uses to which the books may be put, and takes from the shelves volumes to be withdrawn or in need of rebinding. She always visits the wards, or the shops, or the school rooms, as the case may be, to get acquainted with the actual users of the books, and frequently reads aloud or tells stories, to establish a closer point of contact with them, for we feel that, without a personal knowledge of the people in the institution, our book selections might often go wide of the mark.

Our institution population is small enough to make a personal acquaintance with many of the inmates possible, and much of our buying is done with individual borrowers in mind, which makes a rather concrete problem of our book selection and insures us a fair measure of success.

To have the institution libraries managed by the library commission has proved satisfactory in Nebraska. Under the conditions existing when we began, it was the only plan we could devise. Soon after we had the work under way, however, the state institutions were taken out of politics and put under a nonpartisan board of control. We signified our willingness to turn the supervision of the libraries over to the board, should it seem desirable, but the members consulted did not see any advantage in changing, and the commission has continued to administer the libraries. The board of control is ready at all times to support its efforts.

We have demonstrated to the satisfaction of the institutions, I believe, the benefits of well-chosen books in working out their problems, and we have become more firmly convinced than ever of the advantages of a centralized administration, whether under the board of control or the library commission, and of the distinct advantage of having a regular appropriation, even if it is small, at the disposal of the supervising librarian.

CHARLOTTE TEMPLETON,  
Secretary Nebraska Public Library Commission.

#### Institution Library Notes

Dr. F. B. Williams, superintendent of the State Hospital, Lincoln, Neb., has placed his library and reading room in the rear of the amusement hall. Wall shelving has been put in and also tables for current magazines. Sectional bookcases will be added later to complete the alcove effect and give an air of coziness to the library. This library and reading room are open daily from 3 to 5 in the afternoon. The nurses in the training school of this hospital will be given a course of lectures on books and reading during the spring term. Miss Williams, librarian for state institutions of Nebraska and a member of the Public Library Commission of that state, will give these lectures, which will be based on the syllabus recently published by Miss Jones in the *American Journal of Insanity*.

Is any hospital looking for a trained librarian? The vice-director of the Pratt Institute School of Library Science, Brooklyn, N. Y., writes that among their graduates are several trained nurses whose previous experience would especially qualify them for hospital library posi-

tions. She particularly mentions one woman "of excellent education, broad experience, and delightful personality" who was assistant superintendent of nurses in a hospital before she decided to change her profession.

An article on books to read aloud to convalescent patients appeared in the February *Nurse*, and reprints may be obtained at 15 cents each from The Nurse Publishing Company, Jamestown, N. Y.

Inquiries have been received concerning the organization of the Institution Libraries League. At present it has none—like Topsy, it just "grewed;" but, as it now consists of about thirty members, it seems advisable that it should take on a definite form and purpose. A change in its name to Hospital Libraries League or Association or Club has been suggested. Any ideas in regard to its organization or name will be gratefully received.

#### NEW BOOKS

Ellen Glasgow's "Life and Gabriella" is heartily recommended as an entertaining and thoughtful novel of present-day conditions in American middle-class life. The men will want the new Torchy book, which is entitled "Torchy, Private Secretary." "Pegeen," by Mrs. Eleanor Hoyt Brainerd; "Persuasive Peggy," by Maravene Thompson, and J. J. Bell's "Wee Macgregor Enlists," are readable stories of the light fiction order. A "war book" which should have been listed last summer is Eric Fisher Ward's "The Note Book of an Attaché," which is the diary of a member of the American legation at Paris during the first seven months of the war, and is absorbingly interesting. Allied with this is the "Life of Clara Barton," by P. H. Epler (\$2.25), which should be of great interest to nurses, and also "Under the Red Cross Flag," by Miss Boardman. A little book called "Young Hilda at the Wars," by Gleason, contains a very readable account of what an English woman and an American girl accomplished with a Red Cross ambulance.

Here is an instance of how little dependence can be placed on bookdealers' catalogues: A certain book company issued in January an annotated fiction list of over 1,000 titles, advertised as "exceptionally good fiction." Although I have read or seen every book of fiction which seemed at all worth while issued during the last twelve years, out of these 1,000 titles only 210 were known to me, and of these 78 had been discarded as problem or psychological novels unsuited to patients—some of them absolutely pernicious. There were only 40 which could be recommended as really first-class books, and most of these were old standbys, written years ago. It was a singularly complete list of unsuccessful novels left on their publishers' hands, dumped on a bookseller's bargain counter, to be sold at a quarter apiece to an indiscriminating public.

The International Conference of Charities and Corrections will hold its annual convention at Indianapolis on May 10 to 16. On hour and a half of one session will be devoted to papers and discussions on institution libraries. It is hoped that there will be a large attendance of those interested in this branch of institution work.

The new Helen C. Juilliard hospital ship of St. John's Guild, New York city, was launched February 5 at the shipyard of Jackson & Sharp, Wilmington, Del. The new floating hospital, which is a gift to the guild from Helen C. Juilliard, wife of Adrian Juilliard, of New York, will be put into service next July. It is designed to be used throughout the year, being equipped for heating in winter and having a ventilating plant for summer. Twelve hundred patients can be accommodated at a time.



# PHILANTHROPY AND THE PUBLIC HEALTH

Conducted by THE NEW YORK ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR.

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Please address items of news and inquiries regarding Philanthropy and the Public Health to the New York Association for Improving the Condition of the Poor, 105 East Twenty-second street, New York City.

## Sanitary School Surveys as a Health Protective Measure

BY J. H. BERKOWITZ

### I

With the introduction of medical inspection in the public schools for the purpose of detecting diseases, so that contagion may be averted and physical defects requiring treatment removed, the realization has come of the need of likewise discovering and removing defects in school hygiene and sanitation which may have a deleterious effect on the health of the pupils.

Sanitary inspection, as it is carried on at present in most of the cities of the United States, is a perfunctory procedure. There are health and education laws which prescribe sanitary requirements for schools as well as other public buildings, and provide for periodic inspection. There are, however, no uniform laws and no universal standards. While the state laws, municipal health laws, or building codes, or some other regulation, may contain excellent provisions governing the structural features of a school building, they may be entirely silent on ventilation, heating, the care of the plant, or other sanitary provisions.

It would perhaps be impossible to fix the exact measure of the relationship between the child's health and the conditions which surround him in the school without taking into consideration individual predisposition to physical ills and home conditions. It may, however, safely be said that if poor conditions of hygiene and sanitation in the school do not positively hinder a child in its educational progress, favorable conditions are, on the other hand, decidedly helpful.

A clean, bright, well-aired classroom, a clean and airy playground and pleasing aspect of any part of the school plant with which the child comes in direct contact have a cheering influence, and such effect on the pupils' spirits cannot be overestimated as an aid to scholarship. Comfortable desks, blackboards upon which the writing may be seen without straining the eye or body, and comfortable temperature in the room—these are matters which not only tend to bodily comfort, but have a positive beneficial effect mentally as well.

What, then, must these conditions be? To what extent should they be and are they determined and controlled by those responsible for the child's well-being while in school? What standard shall we follow and what ideal shall we strive to attain in so improving these conditions as to re-

move any possible danger that the school, while developing the child's mind, does so at the expense of his bodily health? The answers to these questions depend on what we know of existing conditions in the schools, and on the results of study and experiment on the part of those whose task it is to develop standards of excellence in these matters.

For these reasons it is necessary to have regular periodic inspection of school buildings, to be carried out according to well-defined methods, such inspections being in the nature of thorough surveys to cover all elements of sanitation, equipment, supervision, and care of the school buildings. Fixed standards must be known, and a definite method of procedure must be followed.

### II

The Bureau of Welfare of School Children of the New York Association for Improving the Condition of the Poor



Fig. 1. Insanitary condition of boys' play-yard, which might be prevented by proper janitorial attention to flushing apparatus in toilet.

has undertaken to work out a system of school surveys, in the course of which it is aimed to accomplish the following:

1. Ascertain what are the sanitary conditions in a group of typical schools in New York city.
2. Ascertain what hygienic and sanitary features are dependent on construction, requiring modification to bring them into accord with present-day standards.
3. Ascertain what efforts are made by principals and teachers to insure the full benefit accruing to the children from the sanitary and hygienic provisions made.
4. Test the efficiency of janitorial staff in the maintenance of the school plant and the proper utilization of sanitary equipment.
5. To bring to the attention of the proper authorities such defects as can be remedied, but which might be overlooked through inadequate administrative provision for this kind of work, due to insufficient allowance of public funds for this purpose.
6. To evolve a score card for urban school surveys; this score card to represent the result of the practical application of all known standard tests for school hygiene and sanitation.

### III

As a preliminary to the more extensive survey, the bureau, in cooperation with the Bureau of Educational Hygiene of the Department of Education, made a survey of a large public school, with an enrollment of nearly 1,900 pupils, in one of the more congested sections of the

city, which is typical of a large number of school buildings in New York. The survey was made primarily to test a set of inspection schedules formulated on the basis of standards laid down by recognized authorities on school architecture and sanitation. The survey served this purpose, and, in addition, disclosed some interesting facts, among which might be mentioned the following:

1. Conflict of authority between principal and janitor, because the latter is not, as he should be, the subordinate of and responsible to the principal directly.

2. Inadequate care of the school plant, due to the negligence of the janitor and his helpers in the matters of hygiene and sanitation.

3. Reckless exposure of children to elements injurious to physical well-being through the indifference and per-



Fig. 2. An unsightly display fraught with danger to health.

haps negligence, or even ignorance, on the part of some teachers as to the elements of school hygiene.

4. The remarkably rapid change in standards of school architecture and sanitation, as was indicated by the structural shortcomings in a building little more than a decade old.

5. Commendable efforts made by the school authorities to improve conditions, notably by the installation of sanitary equipment and otherwise to bring the old provisions as nearly as possible up to present-day requirements.

#### IV

The quantitative results of the survey are perhaps of very little interest for the present purpose, and of little significance as indicating merely provisions made in one school. The matters which call for fuller consideration are those involving the utilization of available equipment which can be adapted and adjusted to serve the needs of pupils. Type and age of building do not necessarily enter into account in this, but rather the efficiency, interest, and intelligence of the personnel in the school.

1. DEFECTIVE HEATING.—It was not altogether surprising to find that more than 50 percent of the class rooms in the building surveyed were overheated, in view of the reports of other investigations indicating this to be a fault generally found in many schools. The thermostat temperature control system was not in use. A glance at several of the thermostat indicators was sufficient to reveal the fact that these delicate instruments had been handled roughly, thus rendering them useless. Without official authorization, the janitor had abandoned the use of the system.

2. INSANITARY TOILETS.—Another indication of total failure to grasp the significance of sanitary regulation is

presented by the unsightly condition of the outer playground, in one corner of which is located the boys' toilet (Fig. 1). This condition, an index of matters within, was the result of either a break or obstruction in the flushing apparatus in the toilet, resulting in an overflow into the playground. This continued for several days at one time, and occurred again and again, so that in the course of very many observations, covering a period of over three months, this insanitary condition appeared almost continuously. Granted that the structure and equipment of this toilet are antiquated, it is nevertheless a fact that whenever adequate attention was bestowed on it, it presented no such objectionable aspect, thus proving that watchfulness and care was all that was called for, and this much even new, up-to-date equipment will require for its proper upkeep.

3. HOUSEKEEPING.—The utter failure of those responsible for cleanliness and decency in the school to apply the most elementary precepts was evidenced by the collection of brooms, mops, slop pails, and other cleaners' implements displayed in one of the main corridors through which pupils and visitors must pass (Fig. 2). Directly across is a class room, the door of which must be kept open most of the time to insure proper ventilation. What an example of housekeeping to place before children! Incidentally, the children occupying the class room looking out on this exhibition were newly arrived immigrant children, constituting a special class for whom particular efforts must be made in upholding American ideals of cleanliness in relation to health. Does not this aggravate the offense?

4. THE GOOD AND THE BAD.—Three different attitudes may be said to be represented by the conditions found in the corridors of upper floors (Fig. 3). We have here proof of (1) the endeavor of the Department of Education to



Fig. 3. Sanitary drinking fountains—an improvement effected by the school authorities; wet, slippery floor and unclean sink due to negligence of those using the equipment.

improve conditions, (2) the negligence of some teachers as regards sanitary conditions, (3) the carelessness of janitorial staff in the use and care of property placed under their supervision.

The drinking water equipment shown in Fig. 3 was originally a washbasin and also part of the drinking water provision in the days of the common drinking cup. Sanitary bubbling heads have been fitted over the basin, thus providing drinking facilities for the children in class rooms on upper floors. This has been done on the upper floors in the new wing of the building, thus affording easier access than to the main equipment on the ground floor.



The floor here has been found constantly wet, owing to the spilling of water by children sent by the teachers to moisten sponges and washrags and to fill basins for the purpose of cleaning the blackboards. A little watchfulness on the part of the teachers would easily obviate this condition, which is as perilous to life and limb as it is unhygienic and unsightly.

The trough and faucets are fitted within a closet provided with an upward sliding door, so that it may be kept closed when not in use. During many weeks of observation it was never found closed. At the same time the condition of closet, trough, and floor has always indicated that the washcloths and mops here prepared for cleaning other parts of the building were seldom, if ever, used here.

**5. FAILURE TO PROTECT CHILDREN'S EYES.**—In no other respect is the teacher's responsibility for the physical well-being of the pupils better defined than with reference to the protection of eyesight. Posture is important, of course, and the proper adjustment of desks and seats is a controlling factor in maintaining it. Eyestrain is closely associated with incorrect posture, and likewise caused by poor seating arrangements.

Height of desk and seat, distance from each other, distance from blackboard, etc., are some of the factors to be



Fig. 4. Torn window shades, making uncontrollable the glare which is ruinous to children's eyes.

considered in relation to eyesight. The prevention of glare from excessive light and reflective surfaces is of the utmost importance, and yet perhaps the easiest to attain. The proper means being provided, it rests entirely with the teacher. Perhaps the function of window shades and their usefulness are not fully appreciated, but teachers should know that glare and intense direct light cause eye fatigue. This is particularly harmful to the immature and highly susceptible eyes of children.

Unfortunately, in most of the class rooms surveyed the testimony found (Fig. 4) is against teachers and others responsible for the welfare of the pupils. Torn, unworkable window shades, particularly in class rooms with an unobstructed exposure to the rays of the sun, are a menace to children. Aside from the necessity of proper manipulation of shades for the regulation of light, the simple obligation is imposed on the teacher to promptly report any damage which may effectively interfere with the proper use of such shades.

The school authorities can be expected to correct defects only if they are brought to their attention, and the improvement shown in this instance (Fig. 5) might have

been long deferred if the matter had continued to rest entirely with teachers and janitors.

## V

The conclusions drawn from the survey, as a whole, are too many and too far-reaching to be discussed in a brief magazine article. On the basis of the questions here considered, the following conclusions may be stated:

1. It is necessary to establish by broader survey what are sanitary conditions in public schools.
2. It is essential to develop by practical application standards and methods for the measurement of quantita-

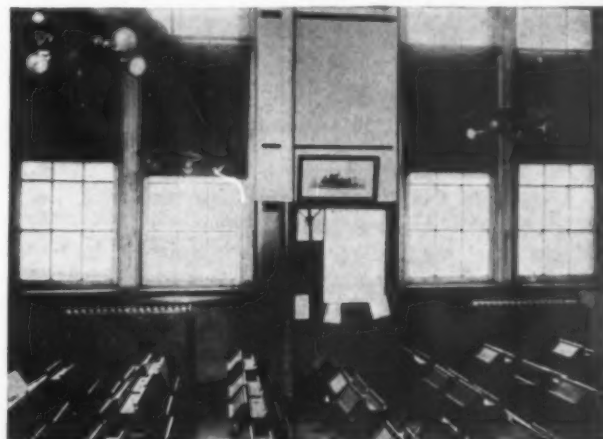


Fig. 5. An orderly room, light properly regulated and window shades in good order, in consequence of bringing former defects to the attention of school authorities.

tive as well as qualitative conditions of school hygiene and sanitation.

3. Improvements brought about in any individual school surveyed, while only incidental, are no less important than the larger results sought.

4. The qualifications of principals, teachers, and janitors should not be considered adequate without a knowledge of school sanitation principles and the ability to apply them through preventive and prophylactic measures.

## VI

To the credit of the Bureau of Educational Hygiene and the Bureau of Buildings of the Department of Education, it must be stated that conditions of deterioration and neglect found in the school surveyed have been corrected as far as budgetary allowance would permit for the present.

Enough has been accomplished and data of a sufficiently suggestive character has been secured to justify the Bureau of Welfare of School Children, in cooperation with the above-mentioned divisions of the Department of Education, to proceed with the plan of extensive school surveys.

Thirty-five Chicago nurses sailed from New York February 2 on their way to a base hospital in France. They are Misses M. Adamson, R. Rauh, A. Neary, A. Fitzgerald, C. Ward, T. Soens, C. Monahan, M. Lonegran, A. McCann, G. Bigely, E. Kandel, M. Williams, I. Walker, M. O'Neil, A. Murphy, M. Lautz, C. Sullivan, M. Fahey, I. Thulis, O. Kepple, C. Parks, M. O'Donnell, and J. Motl, all of Mercy Hospital; Misses M. McGinty and D. Frier, of the North Chicago Hospital; Miss G. Satre, of the Michael Reese Hospital; Miss M. Wallace, of the Polyclinic Hospital; Miss C. Hoffman, of the Illinois Training School; Misses B. Murdock, M. and S. Brown, K. Shea, and A. Johnson. The party was led by Misses Adamson and Rauh, who had but recently returned from the war zone.



### Electric-Heated Water-Jacketed Incubator

To meet the requirements for the safe application of artificial heat to premature and weak infants, three conditions must be observed:

1. The heat must be of a fairly constant temperature, with a safe maximum.
2. A constant supply of fresh air must be available.
3. A normal average of humidity must be maintained.

I have attempted to meet these requirements by the construction of an electric-heated water-jacketed bed. The bed shown in Fig. 1 is constructed of heavy sheet copper, with inside measurements as follows: length, 30 inches; width, 17 inches; and depth, 13 inches. The entire inner chamber is surrounded, except at the top, by a 1-inch water jacket. Covering the water is a layer of asbestos, and this, in turn, is covered by a copper jacket, making in all three walls of copper, with water between the first and second and asbestos between the second and third. The asbestos practically prevents heat radiation from the external surface, limiting heat radiation to the inner surface of the jacket—that is, to sides and floor. At one end a water gauge glass with faucet registers the height of the water, and is also used for emptying the jacket during transportation and in filling the jacket.

In the floor of the water jacket a  $\frac{1}{4}$ -inch pipe is inserted to carry off any water which might flow into the bed in case of a leak, thus avoiding all danger of flooding the crib in event of an accident to the water jacket.

The bed proper rests on a standard (Fig. 1), which is supplied with ball-bearing casters, or with porcelain shoes if preferred, allowing of easy transportation from one ward to another if desirable.

The electric heating apparatus (Fig. 1) consists of:

1. A plate with a 6-inch surface in direct contact with the floor of the water jacket, and specially constructed to carry a maximum capacity of 300 watts, which makes it impossible to heat the water above  $155^{\circ}$  at a room temperature of  $70^{\circ}$  F.
2. A rheostat fastened to the standard (Fig. 1) with seven contacts; six of them graduated to take current varying from 25 watts on contact 1 to 300 watts on contact 6. The seventh contact shuts off the current.

For the protection of very frail infants, a partial cover (Figs. 1 and 2) for the tub,  $21\frac{1}{2}$  inches in length, is provided to shield them more completely from outside air currents. It is provided with a thermometer, so that the temperature within the tub can be ascertained by the

nurse at all times. Further, a brass nickel-plated frame covered by a removable linen cover is provided in the form of a hood (Fig. 2). This can be set over the open space not covered by the metal lid in case of great air currents and extremely cold nights. The hood raises the temperature within the bed on an average of from 5 to  $10^{\circ}$  F., depending on the room temperature and current used, but does not interfere with perfect ventilation. The hood is made collapsible, and may be set at any angle desired as may be indicated.

The baby basket (Fig. 2), which is of the type used in many obstetric wards, is 28x14 inches and has a depth of  $8\frac{1}{2}$  inches, thus allowing considerable air space on all sides, which prevents any danger of the infant's extremities coming in contact with the walls of the heated water jacket. The basket rests on a standard, raising it 2 inches above the floor of the bed, allowing a free circulation of air all around it. A simple removable net cover is provided, which encircles the basket, adding to its cleanliness and appearance. The basket supplied differs from



Fig. 1.

the illustration, being constructed of heavy brass wire mesh, nickel plated, in place of upright bars.

Excessive drying of the air is prevented by the constant circulation through the bed of the free air of the room and by evaporation from a flat basin, 9x11 inches, containing baked porous clay (as used in water filters), over which water is poured to allow of evaporation. This is placed on the floor of the bed immediately under the



baby basket. Varying with the degrees of temperature to be maintained within the bed, it is necessary once daily to supply from 8 to 16 ounces of water to replace that lost through evaporation.

The construction of the bed is such that it is intended for use in an ordinary ward or room, giving the infant the advantage of the most perfect room ventilation. The free currents of air within the bed can be demonstrated by allowing smoke to pass over the surface of the bed, which results in the smoke settling in the center, passing over the floor to the lateral walls and up the sides into the room.

We require inspection and charting of the temperature registered by the lid (if the latter is used), or by a register placed within the basket if the lid is not in use, at 6 a. m., 12 m., and 6 and 12 p. m. as most likely times for maximum changes in the ward temperature.

TEMPERATURE CHART FOR INCUBATOR BED

Day of Entrance..... Case No. ....

Name..... Dr. ....

Date	6 a. m.	12 m.	6 p. m.	12 p. m.

Fig. 4. This chart has twelve lines, and is 5 inches wide and 8 inches long.

As the only variable factor in the maintenance of temperature within the bed is that of the changes in temperature in the surrounding room, I have made numerous calculations at different room temperatures and have tabulated them on a card at the head of the bed, so that the attendant need know only (1) the temperature desired on the inside of the bed and (2) the room temperature in order that by looking at her chart she may ascertain the number of the contact point at which to place the rheostat.

The advantages offered by this apparatus are:

1. Safety. The maximum temperature to which the water can be heated with this special stove is about 155° F., with a room temperature of 70° F. and rheostat on contact 6, this giving a maximum temperature within the bed of about 110° F., with the lid and canopy on.

2. Economy of construction, operation, and, most important, the elimination of the trained attendant.

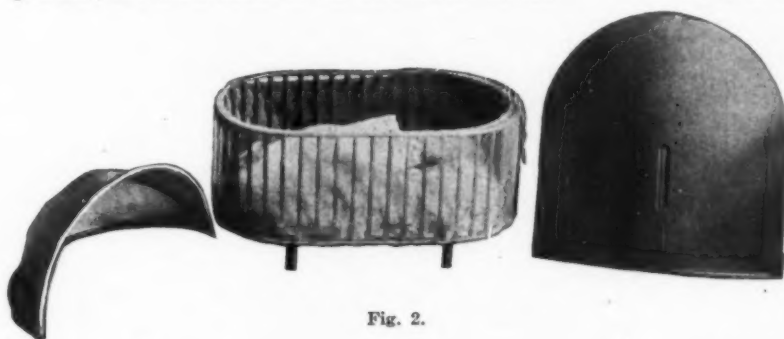


Fig. 2.

3. Simplicity of operation. It needs practically no attention unless there are extreme ranges of temperature in the ward, since the asbestos insulation prevents radiation from the outer surface of the bed, and the heater holds the water at a constant temperature. We rarely find it necessary to change the rheostat more than twice daily.

4. Perfect control of ventilation of air within the bed in the general wards of the hospital.

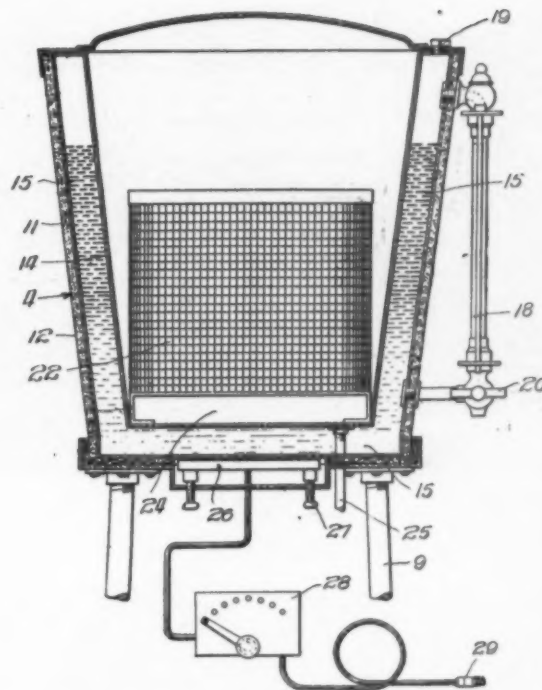


Fig. 3.

Fig. 3. 4, copper wall covering asbestos layer; 9, stand supporting bed; 11, 14, inner and outer walls of copper water jacket; 12, asbestos layer insulating water jacket; 15, water within jacket surrounding sides and floor of bed; 18, water gauge; 19, plug in opening used for filling jacket; 20, cock for emptying jacket; 22, removable crib; 24, air space underneath crib; 26, heating plate; 28, rheostat; 29, electric plug.

5. Humidity, which is little lower than that of the surrounding air (hygrometer, Taylor Instrument Company).

I have had four in the infant incubator beds in use in the wards of Michael Reese Hospital for periods varying from four to fourteen months.

JULIUS H. HESS, M. D.,

Associate Professor and Head of the Department of Pediatrics, University of Illinois, College of Medicine.

#### Use of Hospital Garbage—How One Institution Sterilizes Waste Food for Feeding to the Swine Herd

Hospital or sanatorium garbage furnishes a fairly well-balanced food for pigs, and can be used to advantage if care is taken to prevent broken glass or china, soap, etc., being thrown in the cans, and the garbage is sterilized. Garbage is commonly sterilized by boiling in a cauldron kettle, and this method, while effective, is objectionable in that it necessitates emptying from the cans into the kettle and scooping out after cooking. The labor is thereby increased and disagreeable odors permeate the vicinity. The method here described obviates to a large extent both of these objections, as the garbage is sterilized in the same can in which it is collected.

**Description of Can.**—The cans are made of No. 10 B. W. G. sheet steel, closely riveted and fitted with  $1\frac{1}{2} \times \frac{1}{8}$ -inch reinforcing bands at bottom and top and six vertical reinforcing irons; the bottom of the can is  $\frac{1}{2}$  inch above bottom of reinforcing band. Each can is fitted with a reinforced gasketed top, with permanent gasket and three cast-iron screw pattern wood clamps arranged to secure it in place. The dimensions of the can are 18 inches in diameter by 24 inches high.

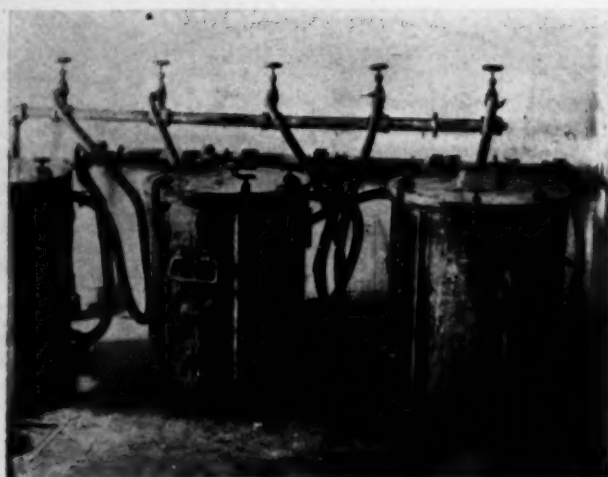


Fig. 1. The complete installation, showing cans with steam connections.

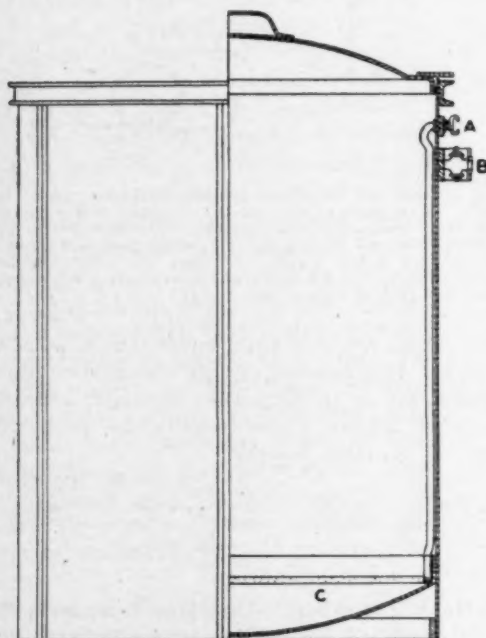


Fig. 2.

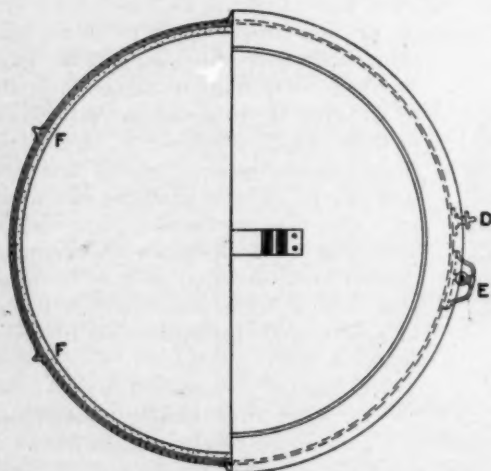


Fig. 3.

Figs. 2, 3. Sterilizing garbage can connected to steam main pipe (upper) and steam hose connections from outlet in can to overflow and vent pipe (lower). A, hose connection to steam supply; B, overflow cock; C, half-inch perforated pipe; D, steam connection; E, overflow cock shield; F, half-inch brass perforated pipe.

Near the top of the can a  $\frac{1}{2}$ -inch overflow and  $\frac{1}{2}$ -inch steam openings are provided, each fitted with a brass bayonet-joint hose coupling for connection. The steam or sterilizing pipe is of  $\frac{1}{2}$ -inch brass, and extends down inside the can, with a perforated coil once around the bottom. The overflow opening is 2 inches lower than the steam opening, and is fitted with a lock shield cock and guard for protection during handling and transportation. Two drop handles are riveted to the sides of each can. The cans are thoroughly galvanized inside and out after being built, and proved tight at cold water pressure of fifty pounds per square inch.

*The Sterilizing Room.*—A small room, either in the hospital or at the farm, should be set aside for the cooking of garbage. At Mount McGregor this room is in the power house, near the entrance to the tunnel, through which the garbage is transported daily from the kitchen. A room used for this purpose should have ample light and ventilation, washable walls, and impervious floors with a floor drain. It can be fitted with a medium pressure steam main (Fig. 1), with as many branches as may be necessary to connect with the cans. An overflow and vent pipe, which is connected directly to the blow-off tank and from which steam hose connections are made to the cans, affords an outlet for excess steam and odors.

*Operation.*—The garbage is emptied directly into the sterilizing cans at the scrapping table in the kitchen. Once a day the filled cans are taken to the sterilizing room, where five cans are connected at one time to the steam main, connections being made at the same time to the outlet pipe, and a steam pressure of ten pounds maintained for one-half hour, after which the cans are transported to the farm and the garbage is fed to the hogs.

This method of sterilizing garbage has been in operation during the past two years at the sanatorium. There has been no sickness or infection of the herd of nearly fifty thoroughbred Berkshire hogs, and, although the pigs have been fed garbage exclusively up to the last two weeks before slaughtering, their growth and prolificacy have been normal. Doubtless some of this success should be attributed to the care taken to prevent as far as possible the entrance of foreign material into the garbage. Doubtless, too, the fact that the garbage is not allowed to accumulate, but is fed fresh, has something to do with the excellent health of the herd. Pigs react quite as unfavorably to stale or decomposed food as do human beings.

Although the garbage cans have been transported two miles daily from the sanatorium to the farm, none have shown signs of marked wear or damage.

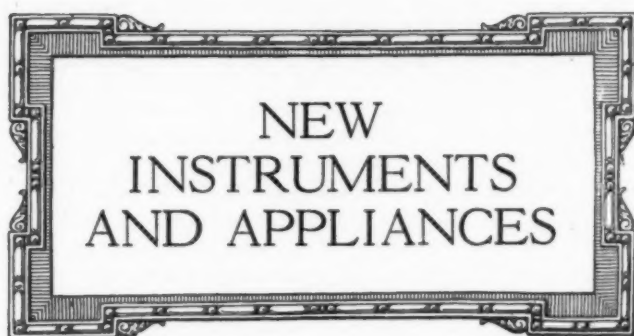
HOWARD JOHN HOWK, M. D.,

Physician in Charge, Metropolitan Life Insurance Company Sanatorium, Mount McGregor, N. Y.

City Solicitor Harvey L. Boutwell, of Malden, Mass., has drawn up a bill for the state Legislature which will allow cities and towns to club together in groups to build tuberculosis hospitals. The Massachusetts law now compels individual municipalities to provide them. The Malden Finance Commission reported, after an investigation of these hospitals, that in most cases 80 percent of their expense falls on the municipality and only 20 percent is received from paying patients, and that the annual maintenance equals the original cost.

Dr. E. A. Hines, secretary of the South Carolina Medical Association, and editor of the journal published by the association, has resigned the superintendency of the Anderson County Hospital at Anderson, which position he has held for the last year, and will resume private practice at Seneca.





VINCENZ MUELLER, Technical Editor.  
GEO. W. WALLERICH, Associate Editor.

Please address items of news and inquiries regarding New Instruments and Appliances to the editor of this department, 327 Southeast avenue, Oak Park, Illinois.

#### Mouth Gag With Lip Retractor

BY DR. F. W. ALTER, Toledo, Ohio.

The Whitehead mouth gag, as originally designed, was principally intended for use in cleft palate work. During the last few years, however, it has become the most popular mouth gag with the profession for use in tonsil and adenoid operations. This instrument is one of the

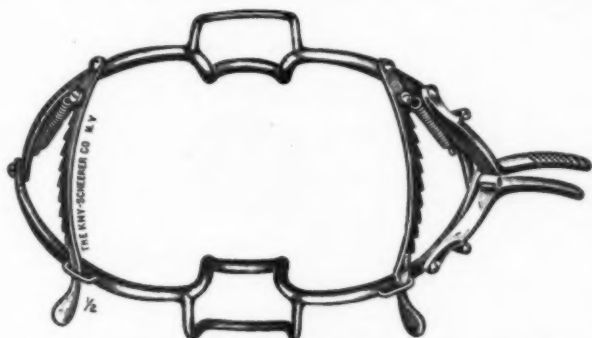


Fig. 1. Whitehead mouth gag with Alter's lip retractor.

few employed for keeping the mouth open that will stay in position without being held by an assistant, and there is but little danger of breaking the teeth. One complaint, however, has often been made about it—that the patient's



Fig. 2. Mouth gag in position, showing the method of lip retraction.

lips will occasionally be pinched. In order to overcome this disadvantage, Dr. Alter had a mouth gag constructed with lip retractors added for both upper and lower lip, and with this improvement one can safely recommend this instrument as one of the most serviceable mouth gags ever offered to the profession.

#### The Etherometer—An Apparatus for Mechanical Administration of Ether

Whenever a new apparatus for the administration of anesthesia is brought to the attention of the writer, he is reminded of an incident that happened to him about fifteen years ago. A doctor entered the store and wished to be shown anesthesia apparatus. After several types had been demonstrated, he wanted to know the price of the cheapest mask without a dropper. On being informed that the price of the well-known Esmark wire mask was 40 cents, he stated he would be hanged before he would waste



Fig. 1. Etherometer and accessories.

40 cents on a chloroform mask; he had used a towel for the last ten years, and a towel would be good enough for him in the future. This doctor was by no means the only one in those days who gave the subject of anesthesia so little consideration, and the general idea seemed to be to "get them under" somehow or other. The profession is to be congratulated, however, that in late years there is a different attitude in regard to this matter, and that many earnest students of this subject have spent much of their time and money to devise apparatus by which anesthesia may be given by any intelligent assistant with comparative safety.

A new apparatus has recently been put on the market

under the name of etherometer, which was devised by Dr. Frederick Montgomery, a man who has had extensive experience as an anesthetist in the Woman's Hospital, New York. The apparatus consists of only three parts: (1) an air-tight graduated glass container, in the metal cap of which are arranged an air intake and shut-off valve, drop regulator, and sight-feed; (2) a flexible capillary tube connected with the bottle and mask, through which the ether is delivered, drop by drop, as indicated by the sight-feed, to the mask; (3) the mask, the face portion of which is perforated, and through the small openings the ether is diffused upon the gauze covering of the mask.

The method of operation is as follows: after the bottle has been filled with the requisite amount of ether, a few compressions of the hand pump are sufficient to charge

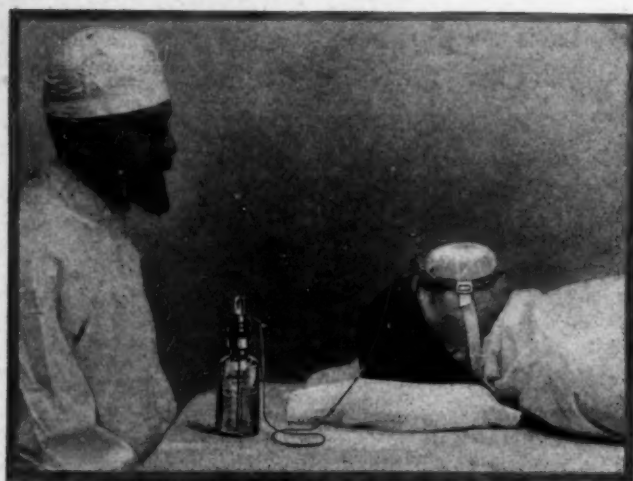


Fig. 2. Etherometer in use.

the flask, when the bulb is detached from the apparatus, the cap replaced, and the air valve sealed; thereafter the etherometer will deliver the anesthetic automatically under the direction of the anesthetist until the container is empty.

The controlling mechanism is very carefully worked out, and a slight twisting of the top cap accelerates or retards the flow of the anesthetic. The drop indicator shows the rate of drops, which may be gradually increased if any excessive irritation is anticipated, such as palpation of the gallbladder before closing the wound, pulling on the cervix, etc., or diminished toward the close of the operation, and so enabling the patient to emerge from the anesthesia by easy stages.

The inventor states that in the majority of operations, when the requisite number of drops per minute has been established in the first fifteen or twenty minutes of the anesthesia, the etherometer will do its work practically without attention for the reason that, when the patient has been properly anesthetized by the administration of so many drops per minute, the maintenance of this amount of anesthesia will insure the patient remaining properly anesthetized.

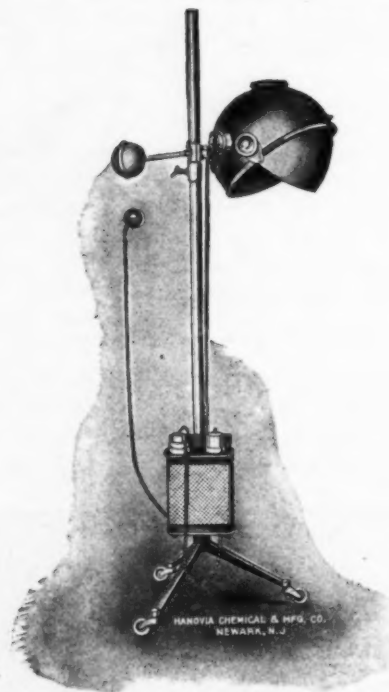
Dr. Montgomery further claims that with the etherometer this amount can be positively maintained, and that the anesthetist never needs to feel that the patient is going to come out, no matter how lightly he may have been anesthetized. This will give him a feeling of security, while ordinarily he is disturbed by doubts unless he has the patient so deeply under that he knows there is no danger of any sudden change.

In contrast to some of the other mechanical anesthesia apparatus, this outfit is very small, the height of the container and cap, etc., being only 7 inches and the mask is of the conventional size.

#### The Alpine Sun Lamp

Since the publication of the works of Bernhard (St. Moritz), Rollier (Leysin), and others, systematic heliotherapy has been receiving increasing attention in this country both by private practitioners and in certain special hospitals and sanatoriums. Although much brilliant work has been done, climatic conditions, absence of sunlight during long periods, and contamination of the atmosphere by smoke, etc., have made marked success possible only in a few specially favored localities. Great importance attaches, therefore, to the introduction of a suitable artificial source of the ultraviolet rays to which most of the healing power of sunlight must be admittedly ascribed.

It is well known that the mercury vapor lamp is particularly rich in ultraviolet light, and with the invention of the Heraeus quartz burner, providing an envelope which absorbs none of the valuable rays, a lamp has been produced which is claimed to be superior to natural sunlight. It has the further advantage of being available



Alpine sun lamp.

everywhere, independent of climatic or atmospheric conditions. It also permits of a far more accurate dosage than is possible when employing sun treatment. This is the Alpine sun lamp, as illustrated.

It is built for both direct and alternating current at 110 to 220 volts. The quartz burner in which the arc plays is about 4 inches long, air cooled, and mounted in a spherical reflector case, as shown. The lower half of this may be turned back completely to allow the light to radiate a large area, or the rays may be applied locally through the adjustable apertures of a shutter also provided in the lower reflector. The lamp is usually mounted on a movable stand, which also carries a rheostat, snap switch, and non-reversible plug and socket. At 110 volts the lamp con-



sumes only 4 amperes and yields about 1,500 candle power. As quartz remains unaffected at temperatures at which ordinary glass would become liquid, a light of unusual intensity and great wealth in ultraviolet rays is produced.

As in the case of natural heliotherapy, the field in which perhaps the most striking results have been achieved in hospital clinics on a large scale is localized or surgical tuberculosis. Again, in the dermatological departments of numerous large hospitals, Alpine sun lamps are now employed for many of the superficial skin complaints, such as acne, psoriasis, eczema, furuncle, ulcers, abscesses, alopecia, etc., with very satisfactory results. Another large field of ultraviolet light in hospitals is post-surgical treatment of wounds. Not only does the light have a powerful bactericidal effect, which prevents complications, but the granulation and healing of the wounds is materially accelerated and scarring prevented. This property of the rays has been of real benefit in the many military hospitals maintained in Europe at the present time, and accounts for the extensive use of Alpine sun lamps by the various armies.

In all these applications, local action of the rays is accompanied and assisted by the general tonic effect of the light and its soothing influence on the nervous system. It is this indirect action in creating a strong and lasting hyperemia of the skin, and thus reducing blood pressure and stimulating metabolism, that gives to ultraviolet light treatment such a wide field of usefulness.

#### Automatic Pedestal Operating Table

The operating table illustrated here is one of the new type of which several have been previously described in this department. It is patterned after the well-known

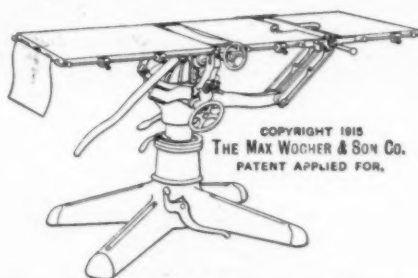


Fig. 1. Cincinnati automatic table in horizontal position.

Bern (Switzerland) table, but it has some additional features which are not possessed by the others.

Instead of being raised or lowered by a foot pedal, this operation is done by the anesthetist with a hand lever. The lateral position can also be obtained, as this table

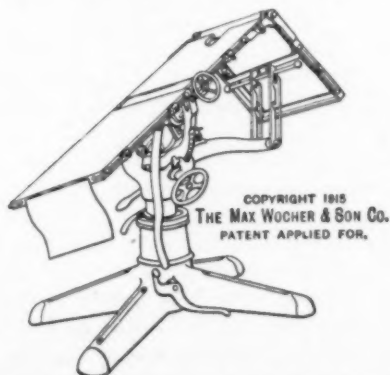


Fig. 2. Cincinnati automatic table in lateral position.

may be tilted to either side and firmly locked. This lateral position permits of free drainage in ovariectomy, gallstone, appendectomy, peritonitis, and other abdominal operations. An additional improvement not found in other tables of this type is a round, revolving, removable tube support for the knees while the patient is in the Trendelenburg position, which prevents to a great extent the numbing of the lower extremities. There is also a cut-out in the middle section of the table, which facilitates operation in prostatic lithotomy, and perineal work.

The pedestal stands firmly on four heavy legs, but for

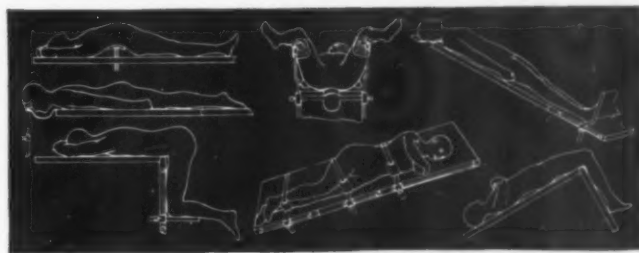


Fig. 3. Principal positions obtainable with the Cincinnati automatic table.

the purpose of moving the table, concealed casters are provided, which are controlled by a foot lever or caster release. Every position used by surgeons may be obtained from this table, and some of them are shown in the outline in Fig. 3.

The usual attachments, such as head rests, lateral support, knee crutches, shoulder supports, etc., are provided, and in addition also a head support with floor stand for cranial work. The pedestal is white enameled, the working parts nickel plated and the top is made of non-corrosive, highly polished nickeloid.

#### A Portable X-ray Tube Stand

The development of transportable radiographic apparatus has, during recent years, been rapid indeed. Portable coils, of the induction and Tesla types, as well as interrupterless transformers, are now being built, and if properly handled are capable of producing excellent results. Many of such equipments are used in hospitals and sanatoriums where the larger and more extensive x-ray equipment has not been installed. In others, use of a portable machine is made in certain cases where it is more desirable to bring the x-ray apparatus to the operating or patient's room.

X-ray examination with the fluoroscope has in many cases proven of wonderful help in the operating room, where it would be impractical to attempt to do the operating in the x-ray laboratory.

There has been in the past one principal difficulty in producing good x-ray plates with the portable machines, namely, that the tube holder as ordinarily furnished with the portable coil is not steady, resulting in slight movement of the tube during the time the exposure is made.

The usual form of iron floor stand is not practical for portable purposes on account of its size and weight. The ordinary wooden tube stand does not fulfil the requirements, since no protection is provided.

The portable stand here shown has recently made its appearance on the market, and has many points in its favor. The general plan in design is something after that of the Albers-Schoenberg compression diaphragm, but far less complicated. The base serves as both holder for the uprights which support the apparatus, and as a plate

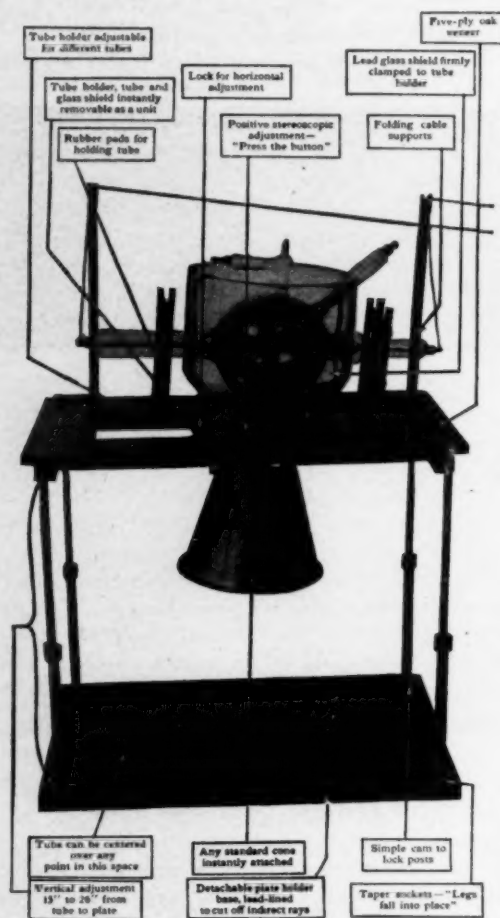
holder. This base is lead lined, so as to absorb secondary rays. Mounted on the base are the telescopic supporters. These supporters can be adjusted vertically from 15 to 26 inches tube distance.

A simple and efficient method of attaching the supporters has been worked out, so that, in common with other parts of the stand, a quick assembly can be made. The upper portion, consisting of the lead glass protection

degrees absolute, it gives a very close approximation when used with any tungsten lamp or acetylene flame; in fact, it is a great help with any light source. In laboratories which must depend more or less on artificial light, this glass will be found to be a great help.

#### Laboratory Table

A growing demand for a table suitable for laboratory work has necessitated some changes in this type of table. The table illustrated is proving very satisfactory to hospitals, sanatoriums, and institutions where laboratory work is done. The table is of ample size, being 48 inches long and 24 inches wide. The table top is of one piece of heavy

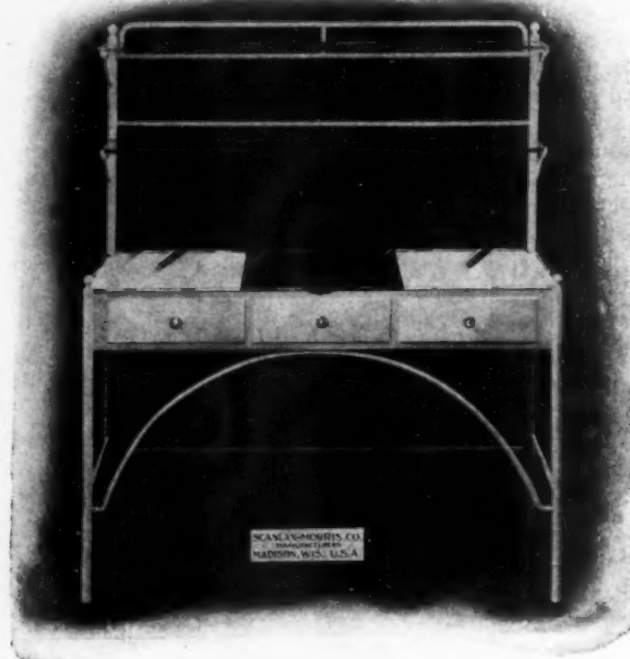


The Peerless radiographic stand

shield, the tube holder, platform, spreaders, etc., are mounted on a five-ply veneer base, this preventing any grounding of the patient to the tube. The finer details in the adjustment of the tube have been worked out to an extensive degree. For instance, it is possible to make stereoscopic plates either horizontally or vertically. In fact, any conceivable position of adjustment of the tube can be accomplished in a few moments' time. The apparatus, fully folded up, may be placed in a case measuring 14 by 22, 3 inches thick, not including the tube-shield or compression cone. These articles are generally carried separately in the case containing the x-ray tube.

#### "Daylite" Glass for Microscopic Work

This new glass, when placed in front of a nitrogen-filled tungsten lamp, gives a white light having the same color and spectral energy distribution as natural daylight. This enables the microscopist to work with artificial light with the same degree of certainty as to color values and distinction of colors as when working with daylight. Although this glass gives absolutely true color values only when used with a nitrogen-filled tungsten lamp at 2,850



Laboratory table.

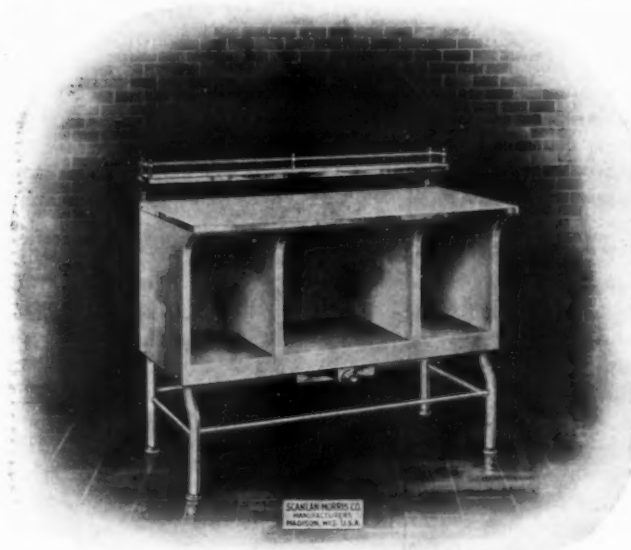
polished plate glass, enameled on the under side, with black center section for differentiating. The two shelves are of polished plate glass, 48 inches long and 8 inches wide, equipped with guard rail to prevent bottles from being pushed off. The frame is of rigid tubular steel construction, bridged in front so as to permit working close up to the table. The three drawers are of pressed steel, and the frame and drawer are finished in white enamel.

#### DeLee Dressing Table (Electrically Warmed)

The illustration shows an infant dressing table built at the suggestion of Dr. J. B. DeLee, of the Chicago Lying-in Hospital. This table has many desirable features, and is a source of great convenience in a hospital maternity dressing room. The top and the shelf for toilet articles are made of monel metal, a noncorrosive metal, easily kept clean; the cabinet, for diapers, towels, etc., is built of steel, with double walls, and finished in white enamel. The electrical heating unit is attached to the bottom of the cabinet, and the cabinet being constructed with double walls, the heating unit, by the circulation of warm air, warms and keeps warm the table top and the articles stored in the cabinet. The electrical heating unit being attached to the bottom, and the warm air ascending to



the top through the double walls, eliminates any danger of getting the table top too warm. The table is 48 inches long and 24 inches wide, and the shelf for toilet articles is 48 inches long and 5 inches wide, being provided with



DeLee dressing table.

railing to prevent articles from being pushed off. Different sizes can be made to order to suit individual requirements. Two of these tables are in use at the Chicago Lying-in Hospital and are proving satisfactory.

#### MINNEAPOLIS CONCENTRATES HEALTH WORK

##### Municipal Hospital to Be Center for Handling Relief Work Throughout the City

A new method for handling the city's sick and injured has been adopted in Minneapolis. The present police ambulance service will be discontinued, and, instead, four motor ambulances and five assistant city physicians will be provided at the city hospital. Two of the ambulances are to be used for accident cases, one for the sick and one for contagious cases. Under the present plan the hospital sends physicians to aid the needy poor. When medicines are necessary the physician leaves a prescription. In cases of extreme poverty it is often necessary for the benefited person to go to the hospital for the drugs. The new system will do away with this. Every physician will be provided with all medicine necessary. Each ambulance will be a miniature drug shop. Drugs will be furnished gratis. Prisoners in the city jail, prisoners about to be sent to the workhouse and all other cases now handled by the police surgeon will be handled in the new way.

Improvements to be made at the Macon Hospital, Macon, Ga., in the near future will include one new four-story building, one new three-story building, the remodeling of the present hospital, and the erection of a building for boiler rooms, garage, laundry, storage, kitchen, etc. The largest of the new structures will be devoted mainly to private rooms, a maternity department, a children's ward, and an operating suite. The new three-story building will contain charity wards and accommodations for patients with minor hurts. The administrative office of the institution will be established in the old main hospital building, which was originally a residence. Plans for the proposed improvements have been drawn by Architect Alexander F. Blair, Forsythe building, Macon, and Edward F. Stevens, 9 Park street, Boston, Mass.

## LETTERS TO THE EDITOR

### Ann Arbor's Psychopathic Hospital—Medical Director Objects to Having His Institution Ignored—Is One of the Oldest in the Country

To the Editor of THE MODERN HOSPITAL:

My attention has been called to a paragraph that appeared in THE MODERN HOSPITAL for December in the division of "Queries and Answers," on page 454. This paragraph relates to the number of psychopathic hospitals in this country. The statement is made "that there are only four specially designed psychopathic hospitals in this country."

Allow me to call your attention to the fact that the University of Michigan has had a psychopathic hospital since 1906. This institution, the State Psychopathic Hospital at the University of Michigan, was the first to be established in this country. It is a specially designed psychopathic hospital and is the university clinic of psychiatry. It has a capacity of 62 beds and an annual admission service of about 250 patients.

If it is convenient, I will be very glad if you can make this correction.

ALBERT M. BARRETT, Director,  
Ann Arbor, Mich.

### How One Man Financed a Hospital

To the Editor of THE MODERN HOSPITAL:

In your article in the February issue on "Some Administrative Problems in Hospital Buying" you so accurately portray the past condition of the Thomas D. Dee Memorial Hospital, of Ogden, Utah, that your remarks might be construed as personal. A small, but excellent and well-equipped, hospital had been launched, free of debt, by the munificence of one wealthy family, but, being without endowment, regular subscribers, or other outside income, at the end of four years had accumulated an indebtedness exceeding \$17,000 over and above the bills of the current month.

During the four years the founders of the hospital had dropped many thousands of dollars into the ever-increasing deficit, but now, refusing to proceed farther, proposed to liquidate all outstanding indebtedness and close the institution. A resolution giving sixty days' notice of the intended closing was passed by the board of directors and published, which action had the effect of greatly reducing the patronage of the institution.

About a month previous to this resolution a very ordinary retired business man, who knew nothing whatever about hospitals, had been installed as manager with the hope of either resuscitating the institution or having a competent party in charge of the obsequies. This was sixteen months ago. The new manager used the methods indicated in your article, but, unlike your "specialist," was given an entirely free hand. At no time did the board of directors or any committee of the board make any suggestions as to what, when, or where goods should be bought, but the majority of the board being business men, themselves heads of institutions financially much greater than the hospital, willingly gave most valuable advice when asked. The new manager made no attempt to pay off old indebtedness, which was eventually taken care of by donations, but immediately commenced to pay cash on all new purchases, thus being enabled to get bottom prices. A distinct line was also drawn between running expenses and betterments—no expensive improvement was undertaken without a donation for that express purpose being first in sight. At the end of sixteen months, although no

outside assistance has been had in paying running expenses, and although during that period the income of the institution was less by \$594, every bill of every nature incurred during that time has been fully paid from the income of the hospital, the institution now being without debt or deficit of any kind.

As far as possible, all purchases have been made through local wholesale houses. Last month a rumor, probably unfounded, came to the ears of the manager that the wholesalers, instigated by the retailers, had decided to raise the price to consuming buyers like the hospital. When the manager visited the wholesale houses for bids on next month's supplies, he confronted them with the rumor, and stated that he would purchase all supplies from Chicago and San Francisco traveling men who represent houses selling to exactly such customers if any signs of a holdup appeared, the result being that, instead of any advance, a slight reduction on former best prices was obtained. It is probable that if your "hospital expert" had been untrammelled, he could easily have beaten the "combination of tradesmen" instead of their winning "with hands down."

The Dee Hospital has 65 beds, and is the only hospital in this city of over 30,000 population. The business men are certainly as keen as the average, but, if any tradesman is of so small a caliber as to desire to hamper the hospital by such methods as you describe, he has not yet been heard from. To the hearty cooperation of Ogden's business men is partially due the creditable financial condition of the Thomas D. Dee Memorial Hospital.

O. J. STILWELL, Manager.

(The article to which Mr. Stilwell refers was written by Mr. Cornelius S. Loder, of New York, and recited an experience in which the merchants of the town conspired to compel the hospital to purchase all its supplies of them without reference to prices.—EDITOR.)

#### Hospital Activities Out West—Dr. Whitman, of Los Angeles, Writes Interestingly of Hospital Legislation, Medical and Nursing Education, and Politics

To the Editor of THE MODERN HOSPITAL:

You ask me to write something for THE MODERN HOSPITAL as to what the hospital people are doing on the Coast, and what the legislators are thinking about doing to the hospital people. As to what is being done by hospital people other than at the Los Angeles county institution, I do not feel that I am well enough informed to discuss the matter intelligently, except in a very general sense, and, as to what the legislators are thinking of doing, the Lord only knows. We must be content with the thought that our lay friends who are in the Legislature mean well, even though at times their new laws play havoc with our established methods.

Considering the eight-hour law—which, of course, means even less than seven hours per day for student nurses, as it is forty-eight hours per week and not fifty-six—the alien law, the civil service interference, and the three-year course for nurses, we are sorely pressed. I will not take up your valuable space with a discussion of these subjects because I believe hospital people are practically of one mind concerning the perniciousness of many state laws regulating hospitals.

The average California statesman is nothing if not original. He cares not for precedent, but is progressive in all things. It is for him to lead—not follow. We take it that this, however, is only another expression of the greater willingness of the so-called West over the East to try new things, or rather to break away from old estab-

lished routine. Of course, sometimes the innovations result in improvement, but sometimes not. Fortunately, the Legislature is not in session this winter, except by special call of the governor for the adjustment of one or two political matters.

In a general way, there is considerable activity in the hospital line on the Coast, principally, however, with county institutions. San Bernardino county is building a new hospital; Santa Ana county has built a very creditable hospital; San Diego county has improved its hospital; Santa Barbara county, Fresno county, and Sacramento county have been making improvements; the new state hospital for the insane at Norwalk is under way, and will soon be ready for patients.

Building in connection with the Los Angeles County Hospital has been constant for the last seven years, and within the next ten to twelve months \$500,000 will be expended in hospital additions, consisting of a tuberculosis sanatorium with a capacity of 400 beds, a six-story service building, dining room and kitchens, enlarging power and lighting plant and laundry, and minor betterments.

With the completion of the tuberculosis building this hospital will have about 1,800 beds. At present there are nearly 1,400 beds, which I believe makes it the second largest general hospital in the United States, Cook County Hospital being the largest. The patient population averages between 1,100 and 1,200. The County Farm, which is located some distance from the hospital, has a patient population of about 700—mostly senile cases. Farm inmates are not included in the hospital count, as it is under separate business management, although, as medical director of the Department of Charities, I have charge of the professional service there also.

The medical staff of the Los Angeles County Hospital consists of 1 medical director, 2 assistant medical directors, 1 psychiatrist, 1 pathologist, 1 roentgenologist, 1 anesthetist, 1 pharmacist, 1 registrar, 1 dentist, 26 interns (to be 28 July 1, 1916), and about 200 nurses, orderlies, and attendants.

There are about eighty of the leading medical men of the city holding appointments on the attending and clinical staff of the hospital, and all of these are associated with one or the other of the two regular medical colleges—medical department of the University of California and medical department of the University of Southern California. Applicants for positions on the attending staff of the hospital must be nominated by the dean of the medical college, and the appointment rests entirely with the medical director of the hospital, thus eliminating all politics.

The interns are selected from a civil service list following a competitive examination. These examinations are held annually at Los Angeles, San Francisco, Chicago, and this year also at Philadelphia, Cincinnati, and New Orleans. The term of intern service is eighteen months. They receive no cash remuneration, but board, room, and uniforms are furnished.

I believe with Dr. Smith, superintendent of Johns Hopkins Hospital, that, second to providing care and treatment for the sick, the larger hospitals of this country, especially those located at or near medical centers, should be utilized for teaching purposes in the broadest sense—namely, "for the education of physicians, medical students, nurses, patients, employees, and the community." It is well known that the hospital over which Dr. Smith presides as superintendent is far in advance of all others in this country, so far as its scientific and educational features are concerned, but it has no political connection. Instead, it is heavily endowed, and its affairs are left to a



board of intelligent free men—free to act as their judgment dictates.

The Los Angeles County Hospital is fortunate in that only members of the faculty of the two great California universities have service in its wards, and, as all of these men are engaged in teaching scientific medicine to medical students, and as this hospital furnishes the principal clinics for the students, it can readily be seen that this is an educational institution as well as a hospital. As to the teaching of nurses, this is by two to one the largest training school west of Chicago. Of the nearly two hundred nurses, more than seventy are graduates, and many of these are graduates of this training school, where a full three-year course is required. Educational requirements for entrance to the training school consist of a complete high school or two-year high school course, or its equivalent. The Los Angeles County Hospital, while far from leading in social service work, has made a fair start, and this year has doubled the force of workers in this hospital.

The reputation of this hospital as a teaching institution is now firmly established, due to the high standing of the men who comprise the attending staff of medical specialists, as well as to its vast clinical resources. There is an ever-increasing inquiry from eastern and middle west medical colleges for internships in this hospital. Probably not less than two hundred senior students will write the civil service examination in March next for these positions, and less than twenty will be students of California colleges.

If this letter partakes too much of the personal, I will have to select some other subject next time.

C. H. WHITMAN,

Medical Director Department of Charities, County of Los Angeles.

### Insists on Low Figures

To the Editor of THE MODERN HOSPITAL:

In your November number of THE MODERN HOSPITAL, page 344, I notice that you have reproduced a clipping from the *Times-Union*, of Jacksonville, Fla., giving the approximate cost of building and equipping our proposed municipal hospital. Since your criticisms of the figures and other such things are so vehement, and since you feel such a deep interest in the welfare of the people of Jacksonville and higher hospital service generally, I am glad to accept your challenge in support of the approximate figures that reached the *Times-Union*.

Between the lines of your first paragraph it is easy to see that you have acknowledged that graft and wastefulness galore are such common occurrences in hospitals that they are looked on by a large majority of people as necessary elements to the very existence of such institutions. I rejoice, however, in the truth that some few people—yes, even laymen—are waking up to the fact that, because an enterprise operates under the name of a hospital and cares for the sick, it is not right to gull and swindle the populace out of all their worldly possessions. I feel that my citizenship for the past ten years in Jacksonville in the medical profession, and my familiarity with the hospitals and methods of conducting such institutions here, altogether give me a special fitness for this discussion. I regret very much that you have made such a vigorous effort to mislead the citizens of Jacksonville in regard to the cost of building and operating its municipal hospital. I notice that you defend the charge of \$2.04 that a certain hospital here has been making against the city of Jacksonville for the care of its indigent patients. This hospital has charged as high as \$2.61 per patient per day, saying that

that amount represented the actual cost, but it has been most interesting to learn what has recently happened. A few months ago a few of the physicians and other citizens inaugurated a searching investigation, and succeeded in uncovering the dry bones of the whole situation. This same institution now finds that it can afford to make a proposition to the city to take care of its indigent patients for a flat rate of \$1.50 per patient per day, which offer the City Council has accepted. They also have opened the wards to the public at the same price. This institution has no endowment, but is self-supporting. I invite each reader to make his own deductions.

The figures set forth in these estimates are the results of many months of investigation, both in the hospitals here and many other cities. Your statement that they are ridiculous remains yet to be proven. As to the building, the plans were drawn by Mr. C. F. Streeter, a very reliable architect of this city, who is a specialist in school and hospital buildings. He drew the plans and specifications for a four-story and basement reinforced concrete building, then submitted them to a well-known contracting and building firm who are engaged in constructing just such buildings, and they go so far as to say that the buildings could be erected for a little less than \$50,000. This building, you must remember, is not a pavilion plan, but a one-building hospital.

As to your criticism of cost of foods, raw or prepared, I want to say that my figures as to the food were taken from the books of the dietitian of St. Luke's Hospital of this city. Her figures show a cost of 9 cents per meal, or 27 cents per patient per day prepared. The Duval Hospital here, owned and operated by the county, having several separate buildings, are operated on about 75 cents per patient per day. They have none of the labor-saving devices that we figure in the new hospital. For some of my figures, especially such items as laundry, drugs, and groceries, I consulted a hospital superintendent of many years' experience here, in Europe, and in South America, and she states that they are ample. The architect who designed the proposed hospital gave me the figures on equipment, and I have verified them. The plan of the hospital is for large wards containing 16 beds each, and such a plan would not cost anything like \$200 per bed to equip. If you care to investigate this matter further, as I have done, and find out what some other cities are doing, you will be convinced that there are a few other places where bad management and useless waste have been supplanted by good judgment and economy, and that a modern hospital can be built and maintained in such a manner as not to literally bankrupt the community. For instance, the indigents in the city of Birmingham, Ala., are taken care of at a cost of 75 cents per day; in Montgomery, Ala., at \$1 per day; in Wilmington, N. C., at \$1.07 per day, and in Cincinnati, O., at \$1.25 per day.

No doubt the stockholders in hospitals appreciate the friendly (?) warning you have given the unsuspecting public in Jacksonville, because they do not care to see the number of such institutions farther multiplied here, but your unwarranted criticism has fallen on deaf ears, as the taxpayers in Duval county are very wide awake on this hospital question, having seen a few little things with their own eyes under the limelight of shrewd investigation.

And until you or someone else care to go deeper into the question of a hospital of this character in Jacksonville, these figures stand, as I can prove them. I will also ask you to give this communication as prominent space as you have given the article criticising my figures.

MARK B. HERLONG, M. D.



Please address items of news and inquiries regarding The Hospital Kitchen (such as equipment and other matters connected with the kitchen and dependent departments of food storage and service) to The Modern Hospital, Kitchen Department, Metropolitan Building, St. Louis.

### Equipment of a Large Hospital Laundry

This first article deals with the installation in the Cincinnati General Hospital because this laundry, in the opinion of several laundry experts, is one of the most complete hospital laundries in the country, and consequently it can be taken as a model of the maximum that a hospital laundry should contain, and will serve as a comparison to show what has been left out in the model plans for smaller hospitals which will follow this first article.

The laundry of the Cincinnati General Hospital is divided into two departments, one caring for the laundry work of the officers, interns, nurses, and other employees, and the other taking care of the patients' work, the two departments being in the same building, separated by a corridor.

About 3,500 pieces per day are handled in the staff laundry, consisting of uniforms and personal wearing apparel, and consequently the work to be done is practically the same as that taken care of in a commercial laundry, and the laundry had to be equipped in a similar manner.

The floor plan shows the arrangement of the machines, which are all driven by individual motors.

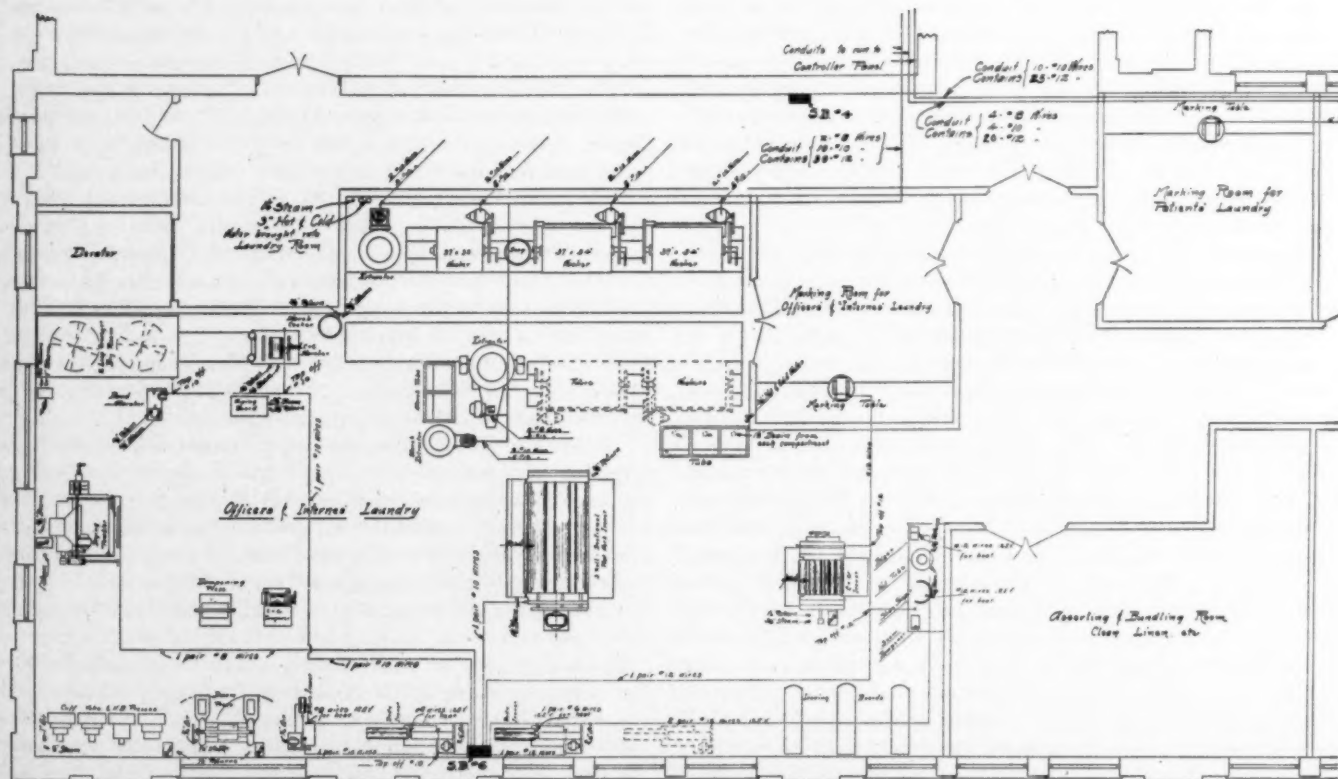
The washing is done in three large metal washers, the clothes then being put in one of the two large extractors, one of which, 32 inches in diameter, is overhead driven, and the other, 26 inches in diameter, is of the solid curb type. Drying is partly accomplished in a large drying tumbler and partly in a motor-driven metallic dry room.

The starching department is unusually well equipped, being provided with a copper starch cooker, a 20-inch starch extractor, a band starcher, steam-heated wiping board, and a 14-inch collar and cuff starcher, all these machines being of the latest type.

The ironing department is a very complete one. Flat work is ironed on a 100-inch three-roll flat work ironer. Aprons and uniforms are done on a Universal press. Some of this work is also handled on the body ironers, of which there are two. This department also contains a pneumatic bosom press and pneumatic cuff, neckband, and yoke presses. A large hand ironing department provides for the finishing of this class of work, and the collar ironing department is equipped with a steam collar and cuff ironer and a complete shaping table. All the sorting and marking of pieces is conducted on the same principles as are in vogue in commercial laundries, which have practically the same equipment as this one.

The patients' laundry handles practically nothing but flat work, consisting of sheets, pillow cases, night shirts, flannel bath robes, towels, etc. The wash room in this department has six large washers and two 32-inch overhead-driven extractors. The drying is accomplished in a Vento drying tumbler, one metallic conveyor dry room, and one metallic truck dry room.

The ironing department is equipped with one 120-inch seven-roll flat work ironer and one 100-inch single-roll flat work ironer for the flat work. For ironing night shirts, underclothing, etc., three electrically heated body ironers



Plan of laundry for



are provided. Garments from contagious wards are sent through the sterilization department in a separate building, divided into two sections, the loading being done into the disinfectant or sterilizer in one room and the unloading on the other side of the partition wall. Mattresses, pillows, and articles which cannot be washed are placed in a large disinfectant oven. Goods which can be washed are placed in the sterilizer and then washed after being sterilized.

The laundry of the Cincinnati General Hospital handles an immense volume of work. The patients' laundry handles all the work of about 500 patients, amounting to about 5,000 pieces per day, making, with the 3,500 pieces in the staff laundry, a total of 8,500 pieces per day. A staff of only thirty employees handles this quantity of laundry work.

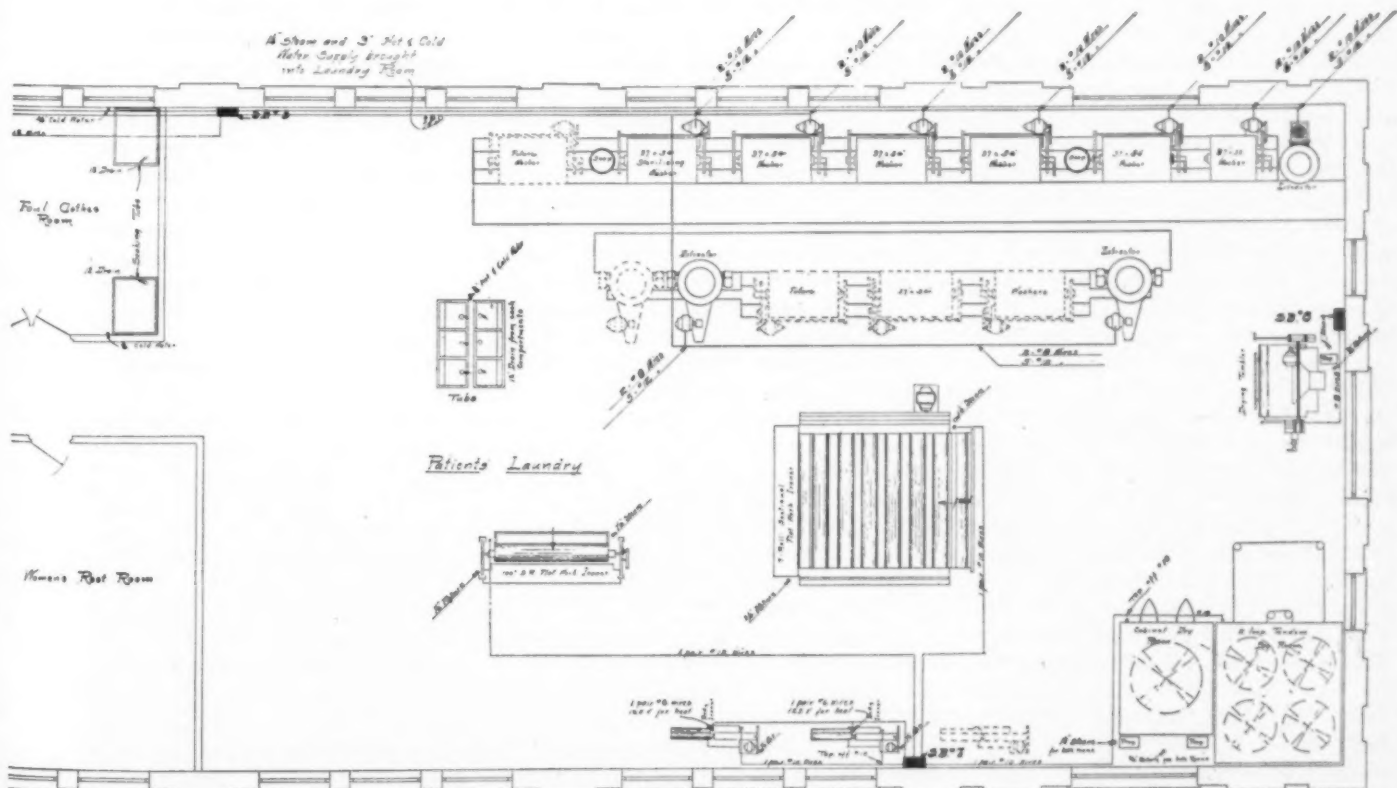
#### Genuine Agateware Utensils

There is a prejudice against agateware in the minds of a good many hospital people, most of which is unjustified, as there are many uses for agateware utensils in the hospital kitchen to which utensils of other materials do not lend themselves so advantageously and economically. The ostensible reason why agateware has been supplanted in hospitals by the more expensive aluminum was because of its liability to chip. When a pan was burnt, the edges of the burnt place were liable to chip off and get into the food, or, if the pan was struck too hard by a spoon or knife, a chip fell off. On the other hand, the partial nonconductivity of agateware, owing to its similarity to glass, made cooking of certain things less susceptible to burning, and food stored or cooked in these utensils was never liable to discoloration; besides, the agate utensil was never liable to discoloration or corrosion by anything put into it. It is a well-known fact that the one thing which injures aluminum is plain water, which always leaves a scum on

the vessel, whereas no deposit is possible on genuine agate and many things are kept fresh in cold water.

One of the principal reasons for the prejudice against agateware is that a very large percentage of the utensils purchased by hospitals are not agateware, although sold as such and having exactly the same color and appearance to the layman's eye. In order to understand the difference between agateware and pseudo agateware, it is necessary to go into the process of manufacture to appreciate why the price of agateware is really the test of whether it is the genuine article or the imitation.

Genuine agateware is produced by first stamping the utensil out of steel; the imitation is also stamped, but at this point the process of manufacture diverges. Genuine agateware is next placed in an annealing furnace in order to extract the impure ingredients in the steel metal, which are thus extracted and deposited on the surface. The next process is cleaning and buffing, which leaves the steel with a silver-like brilliancy. The utensil, after being twice nickel-plated, is then ready for the agate coating. The imitation agate, instead of going through these three processes, is only immersed in an acid bath, which removes the surface impurities and leaves the metal porous so as to make the enamel coating stick, but all the impurities are left in the steel. It is then given a coating of ordinary vitreous enamel, the principal ingredient of which is glass sand, colored to exactly imitate agate, which is applied and then vitrified at a high heat. On the other hand, genuine agateware, after being twice plated, is coated with an enamel the principal ingredient of which is agate, the stone familiar to us as the highly prized marbles of our youthful days—marbles which were worth many ordinary glass marbles in barter—and many laboratory utensils for special uses are manufactured out of this agate. The annealing process, the double plating, and the use of genuine agate instead of ordinary sand, naturally enhance the cost of production and consequently the selling



new General Hospital, Cincinnati, Ohio.

price. The looks of an imitation agate utensil, however, being the same to the untrained eye as that of the genuine, and the price being much lower, naturally the uninitiated have bought the imitation agate, with its glass coating and all the impurities in the steel, ready to come out whenever the steel is exposed by chipping.

The extent to which the sale of imitation agateware exceeds that of the genuine may be gleaned from the case of a city of about 500,000 population, where the manufacturers of genuine agateware sell only to four stores and jobbers, while every department, hardware, and 10-cent store carries the spurious article.

White enamel, while looking better and more sanitary than agate, is not really so, and in many cases the excessive use of arsenic in its manufacture makes it even dangerous. Certain brands of white enamel, however, do not contain arsenic to any dangerous extent, and it behooves purchasers to ascertain the safe brands to buy and to remember that first cost is not the test of the reliability of any white enamel kitchen utensil.

The cost of genuine agateware is the same all over the country within a very small percentage, and any divergence in price is the danger signal which infallibly announces the advent of the imitation; besides, each piece is stamped "agate" and has the laboratory certificate on it.

#### Glass Cooking Utensils

Five years ago it would have been considered quite impossible to make cooking utensils of glass on account of the breakage due to unevenness in expansion and contraction, and yet glass was being made to stand the changes of temperature to which conductors' lanterns and signal lights are subject; and today the uses of a glass developed from this railroad glass might not have been discovered but for the accidental borrowing of a glass laboratory dish the right shape in which to bake a pudding. Contrary to the expectations of the learned chemist, the pudding was a great success, and the glass dish came through without a crack. From that small beginning Pyrex glass cooking utensils of the same shapes as the earthenware and porcelain cooking utensils are made, and they withstand the temperature changes incidental to cooking better than the earthenware and equally as well as the porcelain.

The chief value of glass cooking utensils, from the point of view of the hospital, lies in the fact that glass has a heat conductivity approximately 50 percent higher than ordinary glass and nearly twice as high as earthenware of corresponding thickness; consequently, food in a glass receptacle cooks very much faster than in earthenware, and also faster than in a metal utensil because, although the metal has a higher heat conductivity than the glass, the latter absorbs heat to a far greater degree than metals, which reflect much more heat than they absorb. The capacity of glass to absorb heat is valuable because it retains the heat in the food during transit in hospitals to a very much greater extent than any other material.

An investigation at the McAlpin Hotel in New York, where the glass has been in use for four months past, developed the fact that the hotel managers were well pleased with the result. The ware is being used principally for individual orders of shirred eggs, rice puddings, chicken pie, etc., served in the same dish in which they are cooked. They report that the ware stands high temperatures for long periods without breaking, and the smooth surface makes cleansing easy, while the transparency shows whether the article is clean. It seemed to the representative of THE MODERN HOSPITAL, when in the McAlpin

kitchen, that, due to withstanding high temperatures, Pyrex glass can be thoroughly sterilized, and it will find a place in operating rooms, where ordinary glass would readily break when subjected to rapid cooling from high temperature.

Several hospitals are at the present time beginning to use the new glassware, and some definite reports from dietitians are expected before long. The ware is made by the Corning Glass Company, of Corning, N. Y.

#### Water in Washing Machines

It is bad practice to use too much water in washing machines. The only limit the machine has is the door opening, which usually allows 10 inches of space to fill with water. This amount is fully three times as much as ought to be used. Washing consists of forcing water through the goods, and in a rotary washing machine this is accomplished by lifting the goods out of the water and dropping them into it, and the greater the drop the greater the power to force the water through the goods.

Actual tests show that where the machine is filled up 8 inches deep, the proportion of loss is as follows compared with 3 inches of water:

In a 36x64-inch wood washer, 8 inches depth=81 gallons of water.

In a 36x64-inch wood washer, 3 inches depth=48 gallons of water.

Saving in water.....33 gallons

There is a saving also in fuel to heat the water. Six pounds of soap are necessary in the first case and only three pounds in the second, and only half the bluing is necessary.

It takes two hours and five minutes to wash the load in the deep water, and only one and one-half hours in the shallow, with a proportionate saving in wear and tear on the clothes. The amount of water can be controlled by a water gauge or an automatic valve, the latter being the most dependable, as it eliminates the human equation. All ingredients put into the water should be accurately weighed, as measures are not to be trusted for accuracy. The time allowed for rinsing is very important and should never be shortened to save time.

It is not necessary to have steam in the washing machines, but the hot water system in the laundry must be a circulating one, so that the water is always at the same temperature, which allows the washers being filled with water at the proper temperature. At night the doors of washing machines should always be left open, so that the air can circulate and dry out the machines, thus avoiding spots on wood washers and the formation of verdigris on brass cylinders.

A training school for nurses has recently been opened at the Children's Hospital, Los Angeles, Cal., under the supervision of Miss H. Grance Franklin, who was made general superintendent of the hospital last July. Other undertakings which have been carried out during Miss Franklin's incumbency are the establishment of a free dispensary and a visiting nurses' bureau, both of which, according to a local newspaper, are doing excellent work. Miss Franklin is a pioneer in social service in connection with the work of children's hospitals and dispensaries. She started this work at Bellevue and Roosevelt hospitals, New York city, and was one of the first nurses with the New York Society for Improving the Condition of the Poor. Miss Franklin has done considerable work in the Southwest, particularly in El Paso, where she organized the city and county department of child hygiene. The Children's Hospital at Los Angeles, which was described in an earlier number of this journal, has accommodations for 115 bed patients.



## QUERIES AND ANSWERS

### Some Private Hospital Problems

To the Editor of THE MODERN HOSPITAL:

I desire some information, and will briefly state the conditions in our town in order that you may the better understand.

About a year and a half ago I came here and opened up a small hospital in an old frame building. I opened it as a private institution and, of course, furnished it myself. The work has proved very satisfactory in amount, but I believe would be more if I had a modern building, as this one has outgrown its usefulness. It is not convenient, and it can never be made so; this means more work for the nurses, and as a result I am unable to keep the grade of trained nurses I desire. It is difficult to keep the building warm in the winter and cool in the summer time. This is a small town of 1,500 to 2,000 people, but there is a very large population surrounding it—quite 15,000 to 18,000 people. The nearest hospital is fifty-five or sixty miles, and that one a small private institution. The people here are not educated up to the benefits of a hospital, but they have offered to raise \$8,000 if I will raise an additional \$8,000 for a new plant.

Now, what I would like to know is this: can I afford to pay in one-third in order to have a new hospital? The new building would have ten or twelve beds. I would have to furnish it and maintain it as a private hospital, and pay so much per month rent, and with this rental money the people would pay the taxes and insurance.

W. M. T.

Your problem is an extremely difficult one unless one had more information than your letter supplies. A good deal would depend on the support that such a hospital would have. Would the physicians of the community and in the surrounding country send patients there if you had the new hospital? And even if you could answer this question in the affirmative, there would still be the question of how much your patients could afford to pay for accommodation—that is, what would the per capita cost have to be in order to meet the financial limitations of your clientele? You will know better than anyone else what it is going to cost to feed your people, and, since you have now been running a hospital in that locality for a year and a half, you will have a pretty clear line on what the doctors in that community require. For instance, if they demand pathological work, which they have a right to demand, then you would have to find a pathologist. Whether you can get a satisfactory man and what his services will cost, you will have to ascertain; and so with the x-ray department and physical therapy. If the demands are going to be great in these scientific departments, you will have to get a proportionately greater amount of money from your patients, and the question is, can the class of people that you will attract to the hospital afford a sufficient amount to pay for such accommodations. It seems to us that pretty nearly all of your problem is capable of analysis, using your past experience as a basis. Of course, you can say pretty definitely that if you have a new hospital and can give good medical and surgical service to patients, a larger number of patients will use the hospital, especially well-to-do people, and so

gradually you will be able to educate your community up to the hospital ideal.

Our judgment is that you had better think about a good deal larger hospital than 10 or 12 beds, and plan your institution so that the first unit will accommodate 10 or 12 patients and the necessary number of nurses, and perhaps some of the women help, which will reduce the expenses somewhat; then, as your institution becomes crowded, you can build another unit and a third unit eventually. The margin of profit would be quite small in a 10- or 12-bed hospital; so small, indeed, after your fixed charges or overhead expenses are met, that you would not be able to reserve very much money for the scientific care of your patients. Suppose, for instance, you could get an average of \$20 a week for 10 patients; that is only \$800 per month, and, after you have paid your rent, the salaries, your food bills, and for all necessary supplies, you would not have very much left. But if you had 20 beds, your overhead expenses would hardly be any larger, and the only extra items you would have would be a small amount of food and perhaps a very small amount more for the salaries of a few extra people.

In your section of the country you ought to build the first unit of a small hospital for about \$1,000 per bed, and then you ought to reserve about \$100 per bed for equipment. If absolutely necessary, you can lower these figures, or at least delay the installation of some things that can be put in later on. Perhaps you will know better than we what your per capita cost of maintenance will be, but under average conditions in this country \$1.50 per day per patient ought to see you through. We think that if you will take some of these suggestions and work them out in figures you should be able to come to some conclusions as to what you should do. In the event that you determine to go ahead, if THE MODERN HOSPITAL can be of further service by making you some rough sketches for submission to your architect, you may command its services freely.

### Disinfection of Laundry Goods

To the Editor of THE MODERN HOSPITAL:

We have completed in our county a hospital for tuberculosis, with an accommodation of 53 beds. We are having some little difficulty over the care of the clothing from the beds, etc., of patients. We have an up-to-date laundry plant, but find it difficult to secure help; in fact, we cannot get help to work in the laundry. We have been advised so much about the different methods of disinfection that we find it difficult to come to a conclusion as to what should be done. Can you direct us to any articles dealing with the disinfection of clothing—that is, bed clothing—and the most thoroughly up-to-date and standard plant for that purpose?

COUNTY SECRETARY,  
St. Johns, New Brunswick.

It seems almost unanimously conceded that the best way to disinfect bed clothing of tuberculosis or other infected cases is to use the so-called high-pressure washer. This washing machine is usually rather small in size, built of metal strongly reinforced, carefully gasketed or fitted with ground casting joints, and capable of sustaining a considerable amount of steam pressure. Usually this disinfector is placed in the wall between the soiled clothes room and the laundry proper. The technic is to have the linen man carry the infected goods to the soiled clothes room in canvas bags. The worker in this room exercises due care in emptying the linens out of the bag and in placing them and the bag in the washer. The machine is then closed, and the hot water and steam are let in and the machine is set in motion. Under the high-pressure steam the water is quickly brought to a boiling point and

is kept there for ten or fifteen minutes. The washer is then stopped, with the opening facing the laundry room on the other side of the wall from the soiled linens. The goods are then taken out and are washed in the large washer in the same way that other soiled linens are cared for. This machine is not expensive, and is made and sold by the large laundry machinery companies.

Some small tuberculosis hospitals that are too small to equip themselves in the above way employ a very primitive process, but one that is quite efficient. They use a bath tub with a 3- to 5-percent carbolic acid solution and soak the infected materials for five or six hours or over night. Instead of the carbolic acid a solution made up of one pound of 40-percent formaldehyd to forty gallons of water would answer the same purpose. The odor of the carbolic acid is disagreeable in the clothing, and it is difficult to take it out in the subsequent washing, although some laundrymen claim that they can remove the odor entirely by the use of a small amount of oxalic acid. It is our experience that this method is not satisfactory.

Any of the above methods will destroy the tubercle bacilli or any of the nonspore-forming microorganisms. These methods could not be counted on to destroy anthrax or tetanus or the gas bacillus; but generally we do not attempt to sterilize against these microorganisms in our every-day hospital practice except in the operating room. Certainly it would be unnecessary to think about non-spore-formers in a tuberculosis hospital.

### The Annual Report

To the Editor of THE MODERN HOSPITAL:

We are having some trouble about reaching an agreement as to what our annual report should include. Will THE MODERN HOSPITAL kindly tell us what the ideal report should cover, and can you send us an annual report of the hospital that you think comes nearest to your ideal?

J. C. W.

What would be an ideal report for a large, richly endowed hospital would be a miserable failure for a small, struggling institution, and any report that we might send you would be misleading because it would be predicated on conditions so different from those present in your institution that it would not only be of no service to you, but might do you a good deal of mischief. It just happens that we know your hospital to be about a 50-bed institution, without any very substantial endowment, and we assume that your money for maintenance comes to you in the form of subscriptions annually and in earnings from pay patients. We think the first thing for you to do is to determine the purpose for which you intend to use the report. Annual reports are of three kinds. The first kind is merely a statement of the finances of the institution for the information of those interested in its finances. This form of publication need be issued in only very small numbers, and should deal almost exclusively in the finances of the institution, including the amount of work which has been done during the time covered by the report, the cost of that work and perhaps an estimate as to the cost of the work intended to be done during the next year. The second kind of report that hospitals issue is a purely medical or surgical report. This report covers the number of cases of various diseases—using, for instance, the Bellevue Hospital nomenclature—gives the number of cases of each disease treated, states what was done, and how the case came out. This is a purely medical report, intended to be of benefit to the medical staff of the hospital and the staffs of other hospitals, and is only got out by hospitals that can afford the privilege of issuing a

purely instructive piece of literature. This sort of report is usually issued in comparatively small numbers. The third form of report is a piece of pure publicity, and should be issued frankly with the intention to attract money to the institution. This is really the only sort of report that a struggling hospital can afford to get out, and it seems to us that the greater struggle the hospital is having to finance itself the more necessary is it to get out such a report as this. This report should be really a story of hopes and ambitions of the institution. It should give the number of patients that the hospital has cared for during the period for which the report is issued, in general terms the character of the illness from which they suffered—that is, so many medical and so many surgical cases, so many children, so many births and so many deaths. The report should give the average number of days' stay in the hospital for the patients, the per capita cost of the patients, with a frank statement as to what this per capita cost includes, and these costs ought to be distributed to a certain extent—that is, so much for raw food, so much for insurance, so much for the pharmacy, the x-ray department, the pathological laboratory, etc. This report should also tell what improvements have been made in the hospital during the period, why they were made, and in what they resulted, and it should state what improvements are contemplated in the future and what they will probably cost and the necessity for them. Everything in this report should be in the form of information to a prospective donor of funds on which he may base his future conduct toward the institution. There is a great difference of opinion as to whether this report ought to dwell on financial economies that have been made during the period or on the amount of service given to patients. Most of us in the hospital field are beginning to look with great suspicion on the hospital that has a low per capita cost, but we always want to know what a high per capita cost includes, and the lay public is beginning to feel just the same way about hospital expenditures. People with sense enough to have money to give away know perfectly well that hospitals must pay for service to their patients, and that a high per capita cost may mean good pathological work, good x-ray work, a scientific dietary, plenty of nurses, and the other things that go to make up good hospital care. Most people know also that many hospitals waste their funds, and that, while they have a very high per capita cost, they give their patients practically nothing except boarding-house care. This report ought to make very clear what the patients have had in the way of service. Photographs serve to catch the attention of those whom it is desired to interest, and a well-written story should carry the reader over the dull figures. A personal experience or the story of some pathetic or amusing incident occasionally will brighten the text of the report, and a story of the hopes and ambitions of the superintendent, with a hint or two as to some specific thing greatly needed, with a statement as to what it will cost, has many times brought the required funds.

### Ventilation—Location of Toilets

To the Editor of THE MODERN HOSPITAL:

Our hospital is contemplating the erection of a wing, and the plans are pretty well under way. Some of us are not agreed on some points that the architect has settled in his own mind, and one of these concerns ventilation. The plan was for the installation of a suction fan system to be placed on top of the new wing. Have these types of ventilation proved satisfactory in recent hospital construction? We so commonly find that the artificial ventilation



of large hospitals is unsatisfactory, either because of the complexity of the ventilation plant or because it is not manned by individuals who understand the needs. If I am not mistaken, several of the recent hospitals have done away with artificial ventilation entirely. We would like to know whether this is recognized as proper hospital construction.

Another matter which has come up for discussion is the arrangement of the lavatory in respect to a small ward system. It is intended to put in small wards of seven beds each, with adjoining toilet. Is the arrangement suggested

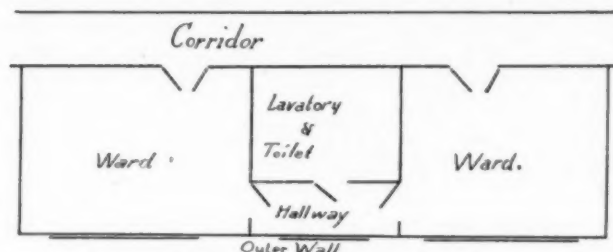


Diagram of arrangement of wards and lavatory.

by the accompanying sketch good hospital architecture, where two small wards would each have access to the same lavatory? The short hallway which connects the ward with the toilet would always have natural fresh air ventilation by its window, while the toilet itself would probably have its own ventilation by a flue. Any suggestions you can offer will be greatly appreciated.

#### INQUIRER.

Theoretically, mechanical ventilation is a tremendous success, and every architect in the country and almost every mechanical engineer can show you conclusively that mechanical ventilation cannot fail, and yet, so far as we know, there is not a single hospital in this country, new or old, that has an efficient, workable mechanical ventilation system in actual operation. It seems to us, as the result of ten years of close study and the running down of every successful plant that we have heard about, that mechanical ventilation for hospitals is not a success today in actual practice; it seems also that all of the requirements of ventilation will have been met if we have window access to fresh air, with transoms over the doors of all rooms and wards, so that fresh air will have easy traveling from the outside into and out of the corridors, and if we have a roof fan with exhaust from the service rooms only, such as toilets and baths, utility rooms, and the small food service rooms on the various floors. The large kitchen should have its own individual exhaust, with a sufficiently large fan to develop a current into the air shaft, so that the smells of foods will not permeate the house. Wards and rooms occupied by patients can be thoroughly ventilated by windows if there are transoms over the doors. Any one of a dozen window devices will prevent the air from blowing in directly on patients.

The sketch you sent is not the best treatment of the lavatory and toilet situated between two wards. Theoretically, your toilet will have its own ventilation by a flue. As a matter of fact, it usually does not have such ventilation, and, if so, the ventilation very frequently does not operate. The best way to do is to have the toilet and lavatory on the other side, next to the outside windows, and the small hallway opposite and running parallel with the large corridor. In this way your toilets will get direct window ventilation. The hallway can be easily lighted by Florentine or similar glass partitions on either side, preferably on the side toward the lavatory, and the light from the outside windows.

A hospital movement has been launched at Clintonville, Wis.

#### NEW SYSTEM OF LABORATORY MARKINGS

##### A Note on the Method Employed for the Records in the Chicago Municipal Tuberculosis Sanatorium

Consistent with speed and saving of space in marking laboratory record sheets in a tuberculosis sanatorium where consecutive semi-monthly or monthly examinations of the excreta of every patient are made, some modification of the ordinary marking system used in general hospitals was found necessary. The methods herein described have been in use since the opening of the Municipal Tuberculosis Sanatorium of the city of Chicago, and have been highly satisfactory.

In marking the reaction of urine, use was made of the signs employed in chemistry in designating the ions—i. e.,  $\text{H-OH}$ —this resulting in much more concise figures than the use of the words acid and alkaline. For instance, if the urine is acid, it is simply marked after reaction with a plus sign (+); if alkaline, with a minus (—); and

if amphoteric, a plus-minus combination  $\left(\begin{smallmatrix} + \\ - \end{smallmatrix}\right)$  is used.

Under the heading "tubercle bacilli" a number of important points are sought for, which, unless designated in concise signs, would require a great deal of space. The Gaffky original or modified tables might be considered, but, on account of their complexity and necessity for reference to a chart, were discarded for the following method:

The plus (+) and minus (—) marks were used to designate, respectively, the presence or absence of tubercle bacilli. If positive, the approximate number of bacilli per field were noted in the upper right-hand quadrant. If, however, tubercle bacilli were found only in the entire smear, then the number in the upper right-hand quadrant was simply followed by the letter "s," to designate slide or entire smear. When the number per field was so numerous that, for practical purposes, too much time would be consumed counting them, the number was designated by the infinity sign ( $\infty$ ), taken from mathematical marking. When the smear had been made after antiformin sedimentation, the above figures were superseded by a capital "A," absence of this indicating the findings were by direct smear. Following these figures is given a brief description of the types of bacilli, thus: "+ 15 S A, long, beaded," indicates that the sputum is positive for tubercle bacilli, fifteen to a smear, prepared by antiformin sedimentation, and that these bacilli are long and beaded rods.

In designating the relative number of different types of cells and bacteria in the sputum, and cells and casts in the urine, the following dot system was used: relatively few, one dot (.) ; moderately numerous, two dots in a perpendicular (:); numerous, three dots in a triangle (Δ); and practically innumerable, by the infinity sign ( $\infty$ ). For example, under cells in the sputum, "Mono. Δ. Polys: Endo." indicates the presence of a great number of mononuclear leucocytes, moderate number of polymorphonuclear leucocytes, and a few endothelial leucocytes.

H. J. CORPER, M. D., Director.

A 42-room hospital, occupying the entire top floor, is to be a feature of a five-story fireproof building to be erected in Butte, Mont., by Dr. T. J. Murray, of that city, at a cost of \$300,000. The first floor of the structure will be designed for stores and business offices. The second, third, and fourth floors will be devoted largely to offices for doctors and lawyers. Dr. Murray will spend about \$15,000 in fitting up law and medical libraries for the building. A roof garden will be provided in connection with the hospital.

## MEDICAL EXAMINATIONS GROWING POPULAR

**The People Everywhere Beginning to Appreciate the Value of an Occasional "Going Over"—A Form of History**

The question of medical examinations of industrial workers and of various classes of well people seems to be meeting with the greatest encouragement all over the country. New York recently set aside a medical examination day, and public announcement was made that the health department officers would examine people without expense. Those who were able to pay were strongly advised to go to their family physician and undergo a careful examination to show that they were in good health.

Similar examinations have been held in many places, Chicago, Kansas City, St. Louis, Boston, Philadelphia, and Pittsburgh more notably.

Inquiry has been made for a uniform examination card that can be used for this purpose. Appended is the card used by the health department of the city of New York which seems to have been found satisfactory:

PAST HISTORY	Name		Age		Sex	M. S. W.		Title		
	Address		Weight		Average Present	Height		Ft.	In.	
	Family history									
	Give year of diseases		Typhoid fever		Pneumonia	Scarlet fever	Other diseases			
			Rheumatic fever		Pleurisy	Diphtheria	Give year			
	Accidents (give yr.)		Operations (give yr.)		Vaccinations		{ Typhoid Smallpox			
	Appetite		Digestion	Sleep	Other Functions	Habits	{ Tobacco Alcohol	Headaches		
	Eyesight R. L.		Eye reflexes	Hearing	R. L.	Teeth	Diagram of the chest			
	Throat and nose		apex							
	Heart { Give size									
{ Murmurs and rhythm										
Pulse { Rest		Sys.								
PRESENT CONDITION	{ Exercise		Blood pr. Dias.							
	Lungs									
	Abdominal organs		Knee jerks							
	Urine S/Gr.		Alb.	Sug.	Microsc.	Blood examinations	Hemoglobin ind.			
Other examinations		Examined		19	By	M. D.				

Uniform examination card, reduced size.

Two opinions relative to insurance in the workmen's compensation system in force in Pennsylvania have recently been rendered by the state attorney general's office. One of the opinions holds that state hospitals and similar state institutions receiving separate appropriations must insure their employees out of their own funds and cannot have the cost of such liability insurance taken out of the appropriation of \$15,000 made for state employees under the compensation act. The other opinion holds that the state treasurer is custodian of the compensation insurance funds, and receipts issued by him for payment made for the use of the fund do not have to be countersigned by the auditor general; that bonds shall be made to him as state treasurer, and not to the commonwealth, and that the treasurer may designate the depositories for the fund from the list of banks approved for deposit of state moneys.

Dr. L. Vernon Briggs, of the Massachusetts State Board of Insanity, in a recent address before a committee of the state Legislature said that many patients are committed to the state hospitals for the insane when they are really not insane. Dr. Briggs was speaking in favor of a bill which would allow the physicians of the psychopathic department of the Boston State Hospital to sign the commitment papers of insane patients, but would give them no fee for so doing. The existing law provides fees for physicians who sign such papers.

## GOAT'S MILK TO GET TEST

**Government Herd of Milch Goats Is Loaned to Sea View Hospital for Series of Experiments—What Has Already Been Done**

After more or less useless discussion for the past few years, the question of the value of goat's milk for the feeding of tuberculosis patients is about to be pretty clearly developed by a series of experiments that are to be inaugurated at Sea View Hospital, New York. The department of Agriculture of the government has loaned to Sea View Hospital twenty-six milch goats, most of them of the Saanen and Toggenberg breeds. This herd of goats is expected to take care of 125 children, and the tests are to be under Dr. E. S. McSweeney, medical director of the hospital, who has arranged for the cooperation of the New York City Health Department Research Laboratory. It is expected that some pretty definite results can be tabulated in the course of these experiments.

It has been known for a long time that goats were peculiarly immune to tuberculosis, and it is not known that the disease has ever attacked a milch goat, nor have the bacilli of tuberculosis ever been found in the milk of these animals; but whether goat's milk carries with it any protection against tuberculosis, or any value not contained in other milk, has never been determined.

It is a peculiar fact that, although goat's milk has been known for many years as almost a specific in summer diseases of infants, the hospitals of this country have not made use of this knowledge and, except in one instance, have not paid special attention to the feeding of sick children on goat's milk.

Some five or six years ago Michael Reese Hospital in Chicago did a considerable amount of work in this field. The hospital purchased twenty of the ordinary, so-called "alley" goats, and at the same time purchased an imported Nubian buck. The females were purchased when they had new-born kids at their side, and were picked up here and there. The herd

was kept at the hospital, and it was an interesting sight to see the goats feeding on the lawn about the big canopy tent erected for the children. Every once in a while an orderly would take a bottle and call one of the goats, and milk a sufficient quantity for one child. The milk was fed warm, and nearly all the children did amazingly well under the treatment. A child suffering from the gastrointestinal summer diseases seemed never too far gone to react immediately under the goat's milk and get well rapidly, although sometimes the milk had to be diluted even as much as four or five parts water to one of milk and the strength gradually increased.

But the Michael Reese Hospital is on a city lot, and it is not an easy thing to handle goats under such circumstances, especially so large a number, and it became necessary eventually for the board of trustees to give up the goat herd.

The herd was not dissipated, however, but was transferred to O. H. Gillespie & Son, Madison, Neb. The illustrations shown herewith are of this herd of goats and their descendants. As will be seen, the buck stands almost as tall as a Jersey cow in the illustration (Fig. 1). The



females shown in the other photographs are grade Nubian goats, but Mr. Gillespie is building up a herd of fine milkers, and is doing a great amount of good in Nebraska and surrounding territory. As the legend under one of the

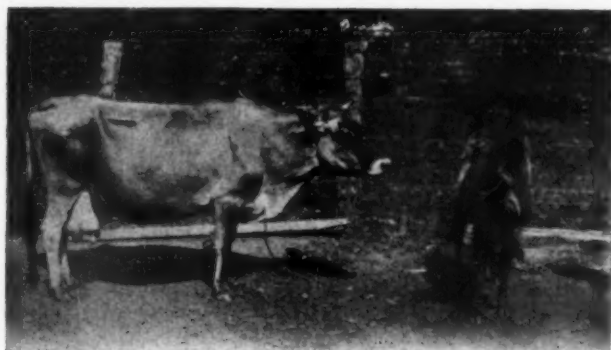


Fig. 1. Rameses II. and his friend. The cows seldom bother the goats, and it is a common sight to see the kids sleeping close around and on top of the cow when she is lying down, which the kids do to keep warm.

cuts indicates, he sends them into other states to save sick babies. The white female shown in the illustration was one of the earlier crosses of a common white goat and Rameses II., the big buck in the picture. She and her first

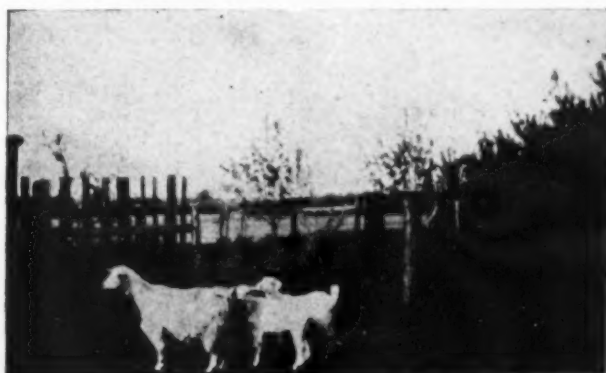


Fig. 2. Honey and her six-weeks-old snow white kids. She is half Nubian and half Saanen. Gives six pounds of milk per day, and has been three times over into the state of Iowa to nurse sick babies.

two kids were shown at the first Chicago Baby Welfare Convention in 1910, and she was then giving twelve pints of milk daily, or a gallon and a half.

During the time that the goat herd was kept at the Michael Reese Hospital, Dr. J. W. Jobling, the pathologist,



Fig. 3. This grade Nubian doe gave birth to her first kid when she was twenty months old, and gave nine pounds of milk per day, with a gradual decrease until dry, twenty-two months later.

did some work with the milk, and he found that almost uniformly goat's milk runs about 6 percent butter fat, and the fat globule is so infinitely small that it was impossible to obtain the cream until the milk had been boiled. Those who have given the matter a good deal of thought contend that the reason why goat's milk agrees with sick children is because of the small size of the butter fat globule; and authorities say that the goat's milk ranks third in the smallness of the butter fat globule; mother's milk has the smallest globule of all, then comes mare's milk or ass'



Fig. 4. Jane, half Nubian, and her six-weeks-old babies.

milk, then goat's milk, and then the various breeds of cows, beginning with the so-called "thin-milk" cows, like the Ayrshire and Holstein, up through the Devon, Short-horn, and Jersey. It has been stated that the butter fat globule of the Jersey cow is so large that cows of this breed have difficulty in raising their own calves because of gastrointestinal disturbances due to the large size of the butter fat globule.

The experiments to be made at Sea View Hospital with goat's milk should be of general interest, and it is to be hoped that the public will have the benefits of the results from time to time as the work proceeds.

The Hamot Hospital, Erie, Pa., has a new 20-bed children's department. The department consists of a ward for infants, a ward for children from two to twelve years of age, an open-air ward, a play room for convalescents, a bath room, a diet kitchen, and large closets. All of the wards are beautifully decorated, the walls of the indoor wards being in a deep fawn color, soft and restful to the eyes, with the ceilings in a rich cream. The walls of the open-air ward are finished in soft green, with the ceiling in a lighter shade. A wide gold band separates the frieze from the tinting on the side walls. The open-air ward is fitted with windows that permit of any part or the whole of two sides of the ward being thrown open. Indirect lighting is employed. All furniture is white enameled. The beds are provided with sliding sides, and are of a height which does not require the nurses or doctors to stoop while attending the little patients. The bath tubs also are raised.

The New York City Department of Charities plans a general reorganization of the city hospital staffs. In all hospitals where the staffs are large and unwieldy, small staffs will be substituted and the doctors will receive a fixed salary. Each staff will be divided into four departments, and the chief of each department will be directly responsible for his men. The plan is similar to one which has been in force at the Johns Hopkins Hospital for the last year and which is being tried out at other institutions. While not directly under the Department of Charities, Bellevue and allied hospitals will also adopt the plan, it is said, although legislation will be necessary, as the city charter prohibits a physician attending at Bellevue to charge a fee.

## HINTS FOR HOSPITAL SUPERINTENDENTS

This column is maintained as a help and reminder to hospital workers about the little things in administration. It is urgently requested that everyone contribute his and her "hints." Each item added to our knowledge helps to fill the common storehouse from which all may draw supplies.

This is a good time to think about your fire protection—indeed, any time is a good time to be on the job about fire protection. It will be everlastingly too late when you have a fire and lose a lot of patients. And it will not do to try to excuse yourself by putting the blame on your board; you are the trained person in the hospital, and the public as well as your own conscience will hold you responsible if you have a fire. Sometimes a dollar or two in recharged chemical extinguishers, or an hour or so in straightening out some little fire hazard in the service room or kitchen, will be all that is necessary.

Don't get the notion that you have to send for an expert every time you want some little thing. There are very few mysteries in mechanics, and nine times out of ten the man you send for won't know half as much about the job you want done as you do. Better study it out yourself, determine just what you want to accomplish and how, then send for your engineer or the person around the establishment who usually does the odd jobs. If you have overlooked some difficulty, your mechanic will call your attention to it, because most people in this world would rather find an excuse than a way.

Too many institutions are finicky about the kind of cases they take. Hospitals are refuges to which sick people may go in the hope that they will be taken in and that there will be proper treatment to get them well again. Sick people do not choose the disease from which they suffer, and generally when they approach a hospital they do not know what is the matter with them. If, when they arrive at the institution and are looked over by a young medical man, it is found that they have any one of half a dozen so-called infectious or contagious diseases, they are refused admission.

This is all wrong, and the kind of hospital that picks and chooses its cases ought to be out of business; either its policy is too narrow and its administrators and supporters are too selfish, or it has not the means to permit it to give a proper hospital service to the community, and it ought to be closed up. The hospital that cannot accept a sick person because of any particular disease has no right to exist in this modern day; any hospital is liable to be overcrowded and almost any hospital can be crowded in some one or another department, but it is inconceivable that any acute disease hospital should turn away any acute disease for any other reason.

Why does not some able and enthusiastic hospital pathologist devise a scheme in the way of a technic for successful handling of gonorrheal vaginitis of children? Every once in a while an epidemic of this disease breaks

out somewhere, and the hospital falls back on the excuse that no method has been devised for preventing the spread of this disease once it gains a foothold in a hospital.

There are many sources of infection of gonorrheal vaginitis, and it is true that it is one of the worst of all diseases to properly control, but it can be done, and it is the business of the hospital pathologist to devise a scheme for doing it.

Some years ago there was an epidemic of this disease in a certain very large hospital with a children's service of about 75 beds; there was a pretty active superintendent in the hospital and a very active medical staff in the children's service; there was an excellent and active pathologist. Everybody tried his and her level best to stop the spread of the disease from the very day that it commenced, and yet there was not one single female child under three years of age in that hospital that did not get the disease before the epidemic ran its course. Certain little insignificant indications pointed to a probable common source of the infection, but for a long time this source could not be ascertained. Presently someone thought about the vaseline jars that were used to oil the rectal thermometers. The pathologist looked into these jars and found every one of them a breeding place for gonococcus. This technic was all changed and the epidemic subsided.

We are hearing a lot these days about efficiency experts and business systems in our hospitals. It seems to us we are being taken clear off of our feet by these efficiency fellows. We have not seen a single "efficiency" report up to date that was worth the paper on which it was written, and certainly we have not seen one that was worth the money it was costing, because these efficiency engineers make their analyses entirely in terms of dollars and cents, and all their reports are comparable to similar reports that come out of manufacturing institutions that are conducted for money profit. These business efficiency experts do not know the product that is turned out of the modern hospital, and they fail to give it a place in their column of figures. The product turned out of the modern hospital is health, and the only money connection that can be figured out of health is the capacity of the patient to go back home and earn a living. Once in a while a business efficiency expert recognizes this new earning power on the part of the hospital patient, but that also is dollars and cents.

Even some of our very best surgeons have been converted over to the idea of thinking in terms of moments and seconds in a surgical operation. They listen with intense interest to the business efficiency expert who tells them that they can go through the peritoneum down on the appendix in sixteen movements, and this efficiency expert gives explicit directions as to just what these motions shall be. Not very long ago one of these gentlemen made the statement before an audience of more than a thousand leading surgeons in this country that every surgeon ought to know exactly what he was going to do in his operation and he ought to have predetermined exactly how he was going to do it, where he was going to stop, and how many motions it was going to take. The hospital people have had to listen to a lot of nonsense, and the physicians of this country as well, but it seems to us that this piece of advice from a man who probably had never seen a surgical operation, and who certainly had never performed one, was the last vibration in absurdity.

Better fight shy of business experts who have come out of a factory run for money and who are proposed as experts to make a "survey" in your institution.